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The Effect of Herbal Medicine on Pregnant Women Attending Antenatal in Nigeria Navy Reference Hospital, Calabar

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Abstract

This study was carried out to assess the effect of herbal medicine on pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar. Three research questions as well as three hypotheses were formulated to guide the study. The study was a descriptive cross sectional research design, where 231 pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar participated. Questionnaire was the instrument for data collection. Face validity was adopted for the study while reliability for the instrument was ensured using test-retest reliability method. Data collected from the 231 respondents were analyzed using frequencies and simple percentages. The hypothesis formulated was tested for significance at 0.05 level using the chi-square (x^2) analysis. The findings of the study revealed that there were several factors that encouraged the utilization of herbal medicine among pregnant women such as religion/culture, lack of finance, behavior of clinic staff, social pressure, cultural beliefs and myths amongst others. The common herbal medicine often used by these pregnant women included aloe vera, lemon grass, ginger, garlic, cranberry, bitter kola, green tea, herbal enema, valerian and peppermint (45%). Furthermore, miscarriage, stomach discomfort and heartburn, were some of the identified effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar. Thus, it was established that pregnant women who patronizes herbal medicine are exposed to several negative effects which in turn, affects their health and the foetus. Consequently, the study recommends amongst others, that the government should utilize all forms of media to create awareness on the negative effects of herbal medicine in order to enable pregnant women make informed decisions before using any herbal medicine. More so, pregnant women should seek health professionals before consuming any herbal medicine in order to prevent harm to the foetus and their health.

Keywords: Herbal Medicine, Traditional Medicine, Pregnant Women, Antenatal Care.

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Background of the study

Herbal medicine use among pregnant women is increasing in many low and high income countries due to their cost-effectiveness in treatment and ease of access. The World Health Organization (WHO) defined herbal medicines 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, 2016). Although, herbal medicines may be produced from any part of the plant, they are commonly made from the leaves, roots, bark, seeds, and flowers (Bandaranayake et al, 2016). The herbs are eaten, swallowed, drunk, inhaled, or applied to the skin (Kerele, 2013). In spite of the great advances observed in modern medicine in recent decades, medicinal plants still play a key role in world health (Calixto, 2020).

Herbal medicines can be purchased in bulk in the crude form or as refined pharmaceutical dosage forms such as capsules, tablets, concentrated extracts, teas, tinctures and decoctions. The use of herbal medicines plays significant roles in the management of both minor and major illnesses and has been influenced by patients' dissatisfaction with conventional allopathic medicines in terms of effectiveness and/or safety, satisfaction with therapeutic outcome and the perception that herbal medicines are inherently safe(Abbot & Ernst, 2017; Calixto, 2020). Some of the more complex reasons for preference of herbal medicines are associated with cultural and personal beliefs, philosophical views on life and health, as well as comparison of experiences between conventional healthcare professionals and complementary medicine practitioners by patients (Astin, 2014).

The use of herbal medicine has been on increase in many developing and industrialized countries (Ernst, 2013). It is known that between 65 and 80% of the world's population use herbal medicines as their primary form of health care (WHO, 2016). Patients who are likely to be at risk from adverse effects of herbal medicines include those who are already prone to difficulties from regularly prescribed medications namely foetus, infants and older children, the elderly, as well as pregnant and lactating women (Saxe, 2017). In developing nations most especially, regulation of sales, importation and manufacturing of herbal medicines are not subject to rigorous scrutiny in terms of safety and efficacy as is the case for conventional western/allopathic medicines (WHO, 2016). Pregnant women use herbal medicines for a variety of reasons such as for pregnancy-associated disorders including nausea, vomiting, and labor enhancement, as well as for illnesses and diseases due to pregnancy such as fatigue, respiratory and skin issues, and nutritional benefits (Fakeye et al, 2021). Additionally, pregnant women use herbal medicines because of their wide availability, possibly better effectiveness relative to modern medicine, traditional and cultural beliefs in herbal medicines to cure diseases and relatively low cost of these medicines (Fakeye et al, 2021).

Few studies on the pattern of effect of herbal medicines during pregnancy showed that more than 10% of pregnant women reported the effect of herbal medicinal products in Finland, Australia, and United States (McLennan et al, 2012; Hemminki et al, 2021; Pastore, 2020; Forster et al, 2016; Nordeng & Havnen, 2014). To our knowledge, only one study has been carried out in Nigeria to evaluate the use of herbal medicines among pregnant women

(Gharoro & Igbafe, 2020). Despite the fact that knowledge of potential side effects of many herbal medicines in pregnancy is limited (Mabina et al, 2017; Maats & Crowther, 2012; Ernst, 2012; Tsui et al, 2021; Lacroix et al, 2020), and that some herbal products may be teratogenic in human and animal models (Pakrashi & Bhattacharya, 1977; Seely et al, 2018; Dugoua et al, 2018; Goel et al, 2016), data on the extent of women's use of herbal medicines during pregnancy is scanty especially in sub-Sahara Africa, where the legislation for distribution and purchase of herbal medicines is not as stringent as it is for conventional medicines (Adisa & Fakeye, 2016). The most common herbal remedies consumed by pregnant women globally are ginger (Zingiberofficinale), garlic (Allium sativum), green tea (Camellia sinensis), peppermint (Menthapiperita), and fenugreek (Trigonellafoenumgraecum) (Ernst, 2012). Studies in Australia and Kenya have shown that those pregnant women who are most likely to use herbal medicines include older and married women with low economic and educational status (Mothupi, 2014; Forster et al, 2016). While pregnant women have increased use of herbal medicines worldwide, most of them are unaware of the possible side effects and teratogenic effects of some herbal remedies (Mothupi, 2014; Dugoua et al, 2018). Pregnant and breastfeeding women are especially vulnerable to harmful effects from herbal medicines as the safety profiles and appropriate dosages of most herbal medicines in these groups are not well established (Conover, 2013). This study aimed at determining the use of herbal medicine among pregnant women in Nigeria vis a vis use of herbal medicines and potential effects of herbal remedies on the foetus.

Statement of the problem

In a setting like Nigeria where there is strong perception and widespread utilization of herbal preparations, it becomes imperative to investigate its use in pregnancy due to their effects on the unborn child and the mother. Moreover, the need for nurses to have a reliable empirical data on the perception and utilization of herbal remedy in pregnancy is becoming extremely important for effective educational interventions. This will promote safe motherhood and reduce maternal and infant mortality resulting from misuse of herbs. Even though studies conducted across the six geo-political zones revealed strong perception of herbal remedy and high consumption rate among the Nigerian populace (Bamidele et al, 2021; Elujoba et al, 2015), few research evidences exist on its use during pregnancy.

Considering the numerous symptoms associated with pregnancy due to physiological changes, there is higher probability of increased herbal consumption during pregnancy especially in rural communities. Moreover, research findings have consistently showed that herbal remedy is perceived to be safe due to its natural source (Adams & Connell, 2021). It was also reported to be cheap, readily available and easily accessible with little self-control over the frequency and quantity taken at will (Scott & Elmer, 2012; Maliakal & Wanwimolruk, 2021; Izzo & Ernst, 2021; Ang-Lee et al, 2021) or cause fatal malformations (Simpson et al, 2021; Vaes & Chyka, 2020).

In fact, some authorities have cautioned against the use of almost all herbal medicines during pregnancy (Ernst, 2012). Despite this available information, pregnant women still use herbal medicines. Since nurses and midwives are saddled with the responsibility of health

promotion, prevention of complications and conservation of life through effective counselling and health education, the increasing demand for statistical data on the perception and pattern of effect of herbal remedies during pregnancy in our immediate local community will help to know the extent of their effect and alternative measures to develop safety among the users. Thus, this study is a step away from the use of herbal medicine to the effects of herbal medicine on pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar.

Objectives of the study

The major purpose of this study is to examine the effect of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar. Other specific objectives of the study are:

1. To examine factors that encourage the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar
2. To examine the common herbal remedies used among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar
3. To identify effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar

Significance of the study

This study aimed at finding the magnitude at which herbal medicines are used and the effect 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 foetal 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.

Research questions

1. What are the factors that encourage the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar?
2. What are the common herbal remedies used among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar?
3. What are the effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar?

Research hypotheses

H_0: There is no significant effect of herbal medicine among pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.

H_1: There is a significant effect of herbal medicine among pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.

Delimitation of the study

The study is based on the effect of herbal medicine among pregnant women attending antenatal care. It is limited in scope to only pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.

Definition 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, 2018).

Pregnant Women: Pregnant women refer to women who are pregnant and in the age group between 19 to 35years and are also 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.

Antenatal Care: Antenatal care is the routine health control of presumed healthy pregnant women without symptoms (screening), in order to diagnose diseases or complicating obstetric conditions without symptoms, and to provide information about lifestyle, pregnancy and delivery.

LITERATURE REVIEW

Conceptual review

Herbal medicine (also called herbalism, phytomedicine or phytotherapy) is the study of pharmacognosy and the use of medicinal plants, which are a basis of traditional medicine (Su, & Miller, 2015). With worldwide research into pharmacology, some herbal medicines have been translated into modern remedies, such as the anti-malarial group of drugs called artemisinin isolated from Artemisia annua—a herb that was known in Chinese medicine to treat fever. There is limited scientific evidence for the safety and efficacy of many plants used in 21st century herbalism, which generally does not provide standards for purity or dosage (Lack & Rousseau, 2016). The scope of herbal medicine sometimes includes fungal and bee products, as well as minerals, shells and certain animal parts (Tyler, 2019).

Paraherbalism describes alternative and pseudoscientific practices of using unrefined plant or animal extracts as unproven medicines or health-promoting agents (Lack & Rousseau, 2016; Tyler, 2019). Paraherbalism relies on the belief that preserving various substances from a given source with less processing is safer or more effective than manufactured products, a concept for which there is no evidence (Tyler, 2019).

Herbal medicine has been used for disease prevention and treating ailments worldwide. It is known that between 65 and 85% of the world population used herbal medicine as their primary form of health care (World Health Organization, 2017). The prevalence of herbal medicine use during pregnancy ranges from 12 to 82.3% (Lisha&Shantakumar, 2015; Mothupi, 2014).

Ginger, garlic, raspberry, cranberry, valerian, chamomile, peppermint and fenugreek are frequently used herbal medicines during pregnancy (Lisha&Shantakumar, 2015, Kennedy et al., 2016; Kennedy et al., 2013; Mekuria et al., 2017; Bayisa et al., 2014; Laelago et al., 2016; Orief et al., 2014; Holst et al., 2019). Using herbal medicine during pregnancy has controversial issues. Even though, herbal medicine is easily available as compared to other medicines, the safety issue during pregnancy is a concern. Using herbal medicine in first 3 months and late in third trimester is dangerous for the foetus. Before using any herbal medicine, it is better to consult the doctor and the pharmacist to ensure that the herbs are appropriate and safe to use during pregnancy (Holst et al., 2019). In pregnancy, mothers are concerned about all medications that may affect their health, the health of the foetus, and the pregnancy outcomes. Availing evidence-based information about benefits and untoward effects of herbal medicine use during pregnancy is important for safer pregnancy and healthy foetus.

Historical background of herbal medicine

Herbal medicine is the oldest form of healthcare known to mankind. Herbs had been used by all cultures throughout history. It was an integral part of the development of modern civilization. Primitive man observed and appreciated the great diversity of plants available to him. The plants provided food, clothing, shelter, and medicine. Much of the medicinal use of plants seems to have been developed through observations of wild animals, and by trial and error. As time went on, each tribe added the medicinal power of herbs in their area to its knowledgebase (Kennedy 2013). They methodically collected information on herbs and developed well-defined herbal pharmacopoeias. Indeed, well into the 20th century much of the pharmacopoeia of scientific medicine was derived from the herbal lore of native peoples (Mekuria 2017).

Many drugs commonly used today are of herbal origin. It therefore means that every culture has explored and used plants for medicinal purposes. The presence of several plants with medicinal properties in a Neanderthal tomb in Iraq suggests that herbs may have been used therapeutically for more than 60 000 years (Solecki, 1975). The first records come from China, where the Emperor Shen Nung compiled Pen Tsao (The Great Herbal, or Chinese MateriaMedica) in about 3000 BC. This book had many subsequent editions, and many of the

thousand or more drugs described are still used in China (Guthrie, 1945). Ancient Egyptian medicine of 1000 B.C. are known to have used garlic, opium, castor oil, coriander, mint, indigo, and other herbs for medicine and the Biblical Old Testament also mentioned herbal use and cultivation, including mandrake, vetch, caraway, wheat, barley, and rye. It is also on record that the Ebers Papyrus discovered in a tomb in Egypt in 1862, dates from 1550 BC and is the oldest medical text to survive. This contains hundreds of herbal remedies, including castor seeds and senna for constipation, and a decoction of cumin, goose fat and milk for various stomach complaints. Mesopotamian practice is recorded on a thousand clay tablets dating from the 7th Century BC: over 200 plant-derived medicines again included castor oil and senna as laxatives (Porter, 1977).

In the written record, the study of herbs dates back over 5,000 years to the Sumerians, who described well-established medicinal uses for such plants as laurel, caraway, and thyme. In Indian Ayurveda medicine has used many herbs such as turmeric possibly as early as 1900 B.C (Argawal et al., 2017). Many other herbs and minerals used in Ayurveda were later described by ancient Indian herbalists such as Charaka and Sushruta during the 1st millennium BC. The Sushruta Samhita attributed to Sushruta in the 6th century BC describes 700 medicinal plants, 64 preparations from mineral sources, and 57 preparations based on animal sources (Girish &Shridhar, 2017).

The first Chinese herbal book, the ShennongBencao Jing, compiled during the Han Dynasty but dating back to a much earlier date, possibly 2700 B.C, lists 365 medicinal plants and their uses - including ma-Huang, the shrub that introduced the drug ephedrine to modern medicine. Succeeding generations augmented on the ShennongBencao Jing, as in the YaoxingLun (Treatise on the Nature of Medicinal Herbs), a 7th century Tang Dynasty treatise on herbal medicine. The ancient Greeks and Romans made medicinal use of plants. Greek and Roman medicinal practices, as preserved in the writings of Hippocrates and - especially - Galen, provided the pattern for later western medicine. Hippocrates advocated the use of a few simple herbal drugs - along with fresh air, rest, and proper diet. Galen, on the other hand, recommended large doses of drug mixtures - including plant, animal and mineral ingredients. The Greek physician compiled the first European treatise on the properties and uses of medicinal plants, De MateriaMedica. In the first century AD, Dioscorides wrote a compendium of more than 500 plants that remained an authoritative reference into the 17th century. Medicinal plants are densely distributed in the tropical rainforest zones of the world of which Nigeria fall into. The medical systems in developing countries involve both traditional herbal systems and orthodox medicines. Due to the economic predicament of these countries, the people resort to the traditional herbal system for their primary health care needs.

In Africa, particularly Nigeria, new drugs are not often affordable thus up to 80 % of the population use medicinal plants as remedies (Kirby, 2016; Hostettmann and Marston, 2012). For instance, Nuclealatifolia is therapeutically useful in dental caries (Falodun et al., 2017). It was reported by WHO that in Nigeria, the ratio of Traditional Health Practitioners to the population was 1:110, while the ratio of Medical Doctors to the population was 1:16, 400 (African Health Monitor, 2013). This gives credence to the fact that people patronize

Traditional medicine practitioners (TMPs) for their primary health needs more than orthodox medical doctors (WHO, 2012).

This condition and the fact that international commercial orthodox medicines are becoming increasingly out of reach for most Nigerians contributed to the dependence of a large percentage of the Nigeria people on local herbal medicine (Sofowora, 1992). It is however worth noting that Africa, North and South America together with Asia are the areas containing the worlds' greatest number of plants species that are not found elsewhere. From this immense reservoir of plants, herbalists in Nigeria source different herbal medicines which are widely used today and surprisingly gaining recognition by government as can be seen by the establishment of the Herbal Medicine Board.

Archaeological evidence indicates that the use of medicinal plants dates back to the Paleolithic age, approximately 60,000 years ago. Written evidence of herbal remedies dates back over 5,000 years to the Sumerians, who compiled lists of plants. Some ancient cultures wrote about plants and their medical uses in books called herbals. In ancient Egypt, herbs are mentioned in Egyptian medical papyri, depicted in tomb illustrations, or on rare occasions found in medical jars containing trace amounts of herbs (Nunn, 2012). In ancient Egypt, the Ebers papyrus dates from about 1550 BC, and covers more than 700 compounds, mainly of plant origin (Atanasov et al., 2015).

The earliest known Greek herbals came from Theophrastus of Eresos who, in the 4th century BC, wrote in Greek HistoriaPlantarum, from Diocles of Carystus who wrote during the 3rd century BC, and from Krateuas who wrote in the 1st century BC. Only a few fragments of these works have survived intact, but from what remains, scholars noted overlap with the Egyptian herbals (Robson &Baek, 2019). Seeds likely used for herbalism were found in archaeological sites of Bronze Age China dating from the Shang dynasty (c. 1600 – c. 1046 BC) (Hong, 2014). Over a hundred of the 224 compounds mentioned in the HuangdiNeijing, an early Chinese medical text, are herbs (Unschuld, 2013). Herbs were also commonly used in the traditional medicine of ancient India, where the principal treatment for diseases was diet (Ackerknecht, 2012). De MateriaMedica, originally written in Greek by Pedanius Dioscorides (c. 40 – c. 90 AD) of Anazarbus, Cilicia, a physician and botanist, is one example of herbal writing used over centuries until the 1600s (Unschuld, 2013).

Concept of herbal medicines

Herbal medicine -- also called botanical medicine, phytomedicine or plant medicine has been defined by WHO as finished labelled medicinal products that contain as active ingredient aerial or underground parts of plants or other plant materials - which include in addition to herbs, fresh juices, gums, fixed oils, essential oils, resins, and dry powders of herbs - leaves, bark, roots, rhizomes or other plant parts which may be entire, fragmented or powdered, or combinations thereof whether in the crude state or as plant preparations. Herbal medicines have been used to treat many conditions, such as asthma, eczema, premenstrual syndrome, rheumatoid arthritis, migraine, menopausal symptoms, chronic fatigue, and irritable bowel

syndrome, among others. Herbs as medicines should be taken with caution because of some undesirable side effects associated with their use (Atanasov et al., 2015).

Substances derived from plants remain the basis for a large proportion of the commercial medications used today for the treatment of heart disease, high blood pressure, pain, asthma, and other problems. For example, ephedra (herb) used in Traditional Chinese Medicine for more than two thousand years to treat asthma and other respiratory problems. Ephedrine, the active ingredient in ephedra, is used in the commercial pharmaceutical preparations for the relief of asthma symptoms and other respiratory problems. It helps the patient to breathe more easily. Another example of the use of herbal preparations in modern medicine is the foxglove plant (Brickell 2018). This herb had been in use since 1775. At present, the powdered leaf of this plant is known as the cardiac stimulant digitalis to the millions of heart patients it keeps alive worldwide. There are over 750,000 plants on earth. Relatively speaking, only a very few of the healing herbs have been studied scientifically. And because modern pharmacology looks for one active ingredient and seeks to isolate it to the exclusion of all the others, most of the research that is done on plants continues to focus on identifying and isolating active ingredients, rather than studying the medicinal properties of whole plants. Herbalists, however, consider that the power of a plant lies in the interaction of all its ingredients

Traditional medicine

Herbal medicine in proper context cannot be divorced from Traditional Medicine Practice. Therefore, it is just proper we know what traditional medicine is. The WHO (2018) define traditional plants use as medicines offered synergistic interactions between ingredients both known and unknown medicine as the sum of all knowledge and practices (whether explicable or not) used in the diagnosis, prevention and elimination of the physical, mental, and social imbalance and relying exclusively on the practical experience and observations handed down from generation to generation whether verbally or orally or in writing (Oseni, 2014). From the above definition, it can be seen that traditional medicine practice stem from the knowledge of herbal medicines. Africans and Nigerians in particular do not just see disease as being caused by physical factors but also include the concept of spiritual influences i.e. ancestral spirits. The traditional treatment has to take into account these various supernatural causes. The traditional African healer knows a lot about physical causes of illness and also has the great knowledge of the kind of leaves, fruits, roots and juices of plants and their combinations which can be used medicinally (Abaribe, 2006)

Herbal medicines in Nigeria: Past and present

Traditional medicine had in the past been seen as a fetish way of curing diseases. It is believed that poor and illiterate individuals patronize traditional medicine. This thought is buttressed by the point that most of its practitioners were regarded as witch doctors who took care of their patient with occult powers. Practitioners of traditional medicine were not in any way seen as doctors; even the western trained doctors saw them as a threat to the wellbeing of their patient.

It should however, be noted that before now, quacks bedeviled the Nigerian traditional medicine practice. This was largely due to lack of necessary legislations to control and regulate the practice. But regulation of herbal medicines was introduced in Nigeria in 1993 in Decree No.15 and was revised in 1999. Under this decree herbal medicines are regulated as dietary supplements, health foods, functional foods and as an independent regulatory category. As reported in the WHO global survey on National policy on traditional medicine and regulation of herbal medicines, May 2005, Nigeria, the expert committee on TM/CAM was created in 1978. The work of this committee led to the creation of two national research institutes on TM/CAM and herbal medicines, founded in 1988 and 1992. They are the Nigeria Natural Medicines Development Agency in Lagos, Nigeria and the National Institute for Pharmaceutical Research and Development.

In recent years, the treatments and remedies used in traditional African medicine vis- a-vis Nigeria have gained more appreciation from researchers in Western science. Developing countries have begun to realize the high costs of modern health care systems and the technologies that are required, thus proving Africa's dependence to it (Helwig, 2020). Due to this, interest has recently been expressed in integrating traditional African medicine into the continent's national health care systems. Today, in some Asian and African countries, up to 80 % of the population relies on traditional medicine or practices for their primary health care needs (WHO. Fact Sheet, Traditional Medicine, Geneva, May 1993.).

In Nigeria, it’s no exception the Nigerian people and even the government equally are aware of the role and need for an alternative means of health care for the people. This awareness gave birth to the establishment of the “Nigerian Natural Medicine Development Agency” (NNMDA). Herbal medicine/traditional medicine practice in Nigeria permeates every tribe. In a research involving Eighty-nine species, plants belonging to forty-six families were identified from fifty respondents, with herbal recipes recorded for thirty-five ailments or therapeutic indications/uses. Individual plant species with highest frequency of prescription include Nauclealatifolia and Pilliostigmathonningii, Ageratum conyzoides, Newlboldialaevis, Phyllanthusmuererianus Cochlospermumplanchonii, Ocimumgratis-simum and Parkiabiglobosa. This research indicates that for the Igede people in Benue state traditional medicine have wide acceptability and a long history (Igoli et al., 2015).

The pros and cons of herbal medicines

Increasing cost and distrust of modern western medical care in recent years has promoted the use of alternative and traditional therapies. Many of these herbal remedies include some form of herbal or homoeopathic remedy that is not medically regulated for safety or efficacy (Ernst & White, 2020). In most developed countries herbal medicines are gaining popularity. However, usually herbal medicines in most places are not regulated as medicines. Problems might arise as a result of the lack of adequate regulations, the pharmacological complexity of herbal products and the paucity of information on the pharmacological and toxicity of these compounds. Herbal medicines can be purchased from outlets ranging from health food stores to internet sites and thus crucial evaluation of their safety is relevant and important. The upsurge of global awareness and use of herbal medicines has created the multiplicity of

markets of these herbal remedies and increase in herbal preparation and formulation in the Nigerian market. Listed below are few of such preparations:

· B-Success plant, a Powder, used as an antibiotic with aleovera

· Operation sweep, a Powder, used for Rheumatoid arthritis · Aloe vera Tablets, an Antioxidant

· Zarausmacine, Powder, an Antibiotic

· Virgy-virgy computer Worm expeller, powder, worm expeller

· Dorasine powder, Powder, Typhoid fever, malaria,

· Man power Powder, Watery of sperm, low sexual energy sperm count, diabetes

The popularity and availability of these remedies has generated concerns regarding the safety, efficacy and responsibility of practitioners using the Nigerian traditional remedies. These influx of herbal remedies into the Nigeria market, with some meeting and some not meeting the requirements set by the standard organization of Nigeria (SON) and the national agency for food and drug administration and control (NAFDAC), is a matter of concern that some cases of poisoning by unidentified chemicals and concoctions might have been due to inadequate or improper labelling requirements of these remedies (Obi, 2017).

Several herbs used in traditional medicine have been validated by scientific evidence for their efficacy and safety (Okunji et al., 2017). Attempts to isolate the active constituents and develop them into therapeutic agents have posed far more challenges than was anticipated. The usual sequence in drug discovery based on traditional medicine is the identification of the herbs used by traditional healers and subjecting them to in vitro bioassay. This has not been as successful as would be expected given the resources and time expended in bioassay guided separation of plant extracts. Due to reasons which are not completely well understood, some plant extracts appear to have biological activities that are superior to that of the isolated pure compounds. The organic fraction of the alcoholic extracts of Enantiachlorantha and Ancistrocladus spp. for example, showed greater anti-plasmodial activity than the individual compounds isolated from them. In other cases, the in vivo laboratory results did not correlate with either the ethnomedical evidence or the clinical observations. The in vivo anti-plasmodial activity of, Pothomorpheumbellata, a well-known traditional Brazilian antimalarial plant could not be confirmed using the standard intraperitoneal Plasmodium berghei mice model (De Ferreira da Cruz, 2020).

One herbal product worth mentioning come by the trade name Jobelyn an extract of Sorghum bicolor, a NAFDAC registered herbal product presented in the form of capsules and syrup, marketed by “Health Forever” in Nigeria. The product has high antioxidant rating, promotes heart health, regenerates red blood cells and thus has been used in the Nigerian health care system as an adjunct in the management of sickle cell disease. It promotes immune response and healthy joint function. The above notwithstanding, "adulteration, inappropriate formulation, or lack of understanding of plant and drug interactions have led to adverse

reactions that are sometimes life threatening or lethal. Herbal remedies can also be contaminated, and herbal medicines without established efficacy, may unknowingly be used to replace medicines that do have corroborated efficacy (Ernst, 2017). Although not frequent, adverse reactions have been reported for herbs in widespread use (Sal, 2016). On occasion serious untoward outcomes have been linked to herb consumption. A case of major potassium depletion has been attributed to chronic licorice ingestion, and consequently professional herbalists avoid the use of licorice where they recognize that this may be a risk.

Concept of antenatal care

Antenatal care can be defined as that received by pregnant women during their gestational period in order to improve their pregnancy outcome (Viccars, 2013; Reza, 2018; Trinh, Dibley, & Byles, 2017). Antenatal care refers to the planned series of health care services offered to the pregnant women with an ultimate goal of a healthy mother and infant. Also, it can be defined as a proper assessment of risk factors and a series of health examinations which enable health personnel to uncover conditions in the mother that may threaten her or her fetus during pregnancy (Viccars; Urassa, 2012). Finally, according to the World Health Organization (2012), antenatal care constitutes screening for health and socio-economic conditions likely to increase the possibility of specific adverse pregnancy outcomes; providing therapeutic interventions known to be effective; and educating pregnant women about planning for safe birth, emergencies during pregnancy and how to deal with them. In brief, in both developed and developing countries, antenatal care is the regular monitoring of the mother's condition during pregnancy in order to promote maternal health and achieve healthy outcomes of pregnancy.

Empirical review

The issue of traditional medicine has so much been explored with data explaining its effect on pregnancy and life in general. However, the researcher will be highlighting previous works that are relevant to this study for clearer understanding, and will help to explore areas that needed more cover.

Factors that encourage the utilization of herbal medicine among pregnant women

The World Health Organization (WHO, 2018) estimates that 80 percent of the population of some Asian and African countries presently use herbal medicine for some aspect of primary health care. Some prescription drugs have a basis as herbal remedies, including artemisinin, digitalis, quinine and taxanes (WHO, 2018). Consumption of herbs may cause adverse effects (Talalay&Talalay, 2021). Furthermore, "adulteration, inappropriate formulation, or lack of understanding of plant and drug interactions have led to adverse reactions that are sometimes life threatening or lethal." Proper double-blind clinical trials are needed to determine the safety and efficacy of each plant before medical use (Vickers, 2017). Although many consumers believe that herbal medicines are safe because they are natural, herbal medicines and synthetic drugs may interact, causing toxicity to the consumer. Herbal remedies can also be dangerously contaminated, and herbal medicines without established efficacy, may unknowingly be used to replace prescription medicines (Ernst, 2017).

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 (2015), 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., 2015).

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., 2014). 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& Sally, 2016). A survey of 577 pregnant women attending their first antenatal visit at King Edward VIII hospital in Durban, South Africa, in 2015 revealed widespread use of herbal 9 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, 2014).

Laelago (2019) while highlighting the factors promoting the use of herbal medicine stated that the use herbal medicine during pregnancy is associated with educational status of women, income level of household and age of women.

Common herbal remedies used among pregnant women

Few herbal remedies have conclusively demonstrated any positive effect on humans, possibly due to inadequate testing (Ernst, 2017). Many of the studies cited refer to animal model investigations or in-vitro assays and therefore cannot provide more than weak supportive evidence. However, examples of medicinal plants in use in other parts of the world and in Nigeria in particular that have demonstrable some interesting pharmacological results include: Aloe vera. It is traditionally used for the healing of burns and wounds (Maenthaisong et al., 2017). A systematic review (from 1999) states that the efficacy of aloe vera in promoting wound healing is unclear, while a later review (from 2017) concludes that the cumulative evidence supports the use of aloe vera for the healing of first to second degree burns (Ernst, 2017; Vogler& Ernst, 1999). Boophone (Boophonedisticha) a highly toxic plant has been used in South African traditional medicine for treatment of mental illness (Stafford et al., 2018).

Research demonstrated in vitro and in vivo effect against depression (Pedersen et al., 2018; Sandager et al., 2015; Neergaard et al., 2021). The fruits, seeds, leaves are used as stimulant, and as remedy against cold. Calendula (Calendula officinalis) is used traditionally for

abdominal cramps and constipation (Gordon, 2014). In animal research an aqueous-ethanol extract of Calendula offici-nalis flowers was shown to have both spasmolytic and spasmogenic effects, thus providing a scientific rationale for this traditional use (Bashir et al., 2016). The whole plant leaves and seeds are used in herbal formula. The juice from fresh plant is used for dressing wounds, ulcers, craw-craw and as a remedy for inflammation. A decoction of the root is a remedy for abdominal pains and the raw root is chewed for digestive disorders. Garlic (Allium sativum) L. Liliaceae, Hausa-Tafarnwa, the bulbs and leaves parts are used in ethnomedicine. It has diuretic properties and is given in fevers, coughs, flatulence, disorders of the nervous system. It has been used as a remedy for asthma and hoarseness of the chest. The bulb juice is used as a broad spectrum antibiotic against fungi and bacteria. It may also lower total cholesterol levels (Ackerman et al., 2021).

Echinacia (Echinacea angustifolia, Echinacea pallida, Echinacea purpurea) extracts is used for the treatment of rhinovirus colds (Shah et al., 2017). Feverfew (Chrysanthemum parthenium) is sometimes used to treat migraine headaches (Shrivastava et al., 2017). Although many reviews of Feverfew studies show no or unclear efficacy, a more recent RTC showed favorable results (Silberstein, 2015). Feverfew is not recommended for pregnant women as it may be dangerous to the fetus (Yao et al., 2016; Modi and Lowder, 2016). Gawo (Faidherbiaalbida), a traditional herbal medicine in West Africa, has shown promise in experimental animal tests (Tijani et al., 2018). German Chamomile (Matricariachamomilla) has demonstrated antispasmodic, anxiolytic, anti-inflammatory and some antimutagenic and cholesterol-lowering effects in animal research (Mckay et al., 2016).

In vitro chamomile has demonstrated moderate antimicrobial and antioxidant properties and significant antiplatelet activity, as well as preliminary results against cancer. Essential oil of chamomile was shown to be a promising antiviral agent against herpes simplex virus Type 2 (HSV-2) in vitro (Koch et al., 2018). Ginger (Zingiberofficinale), administered in 250 mg capsules for four days, and effectively decreased nausea and vomiting of pregnancy in a human clinical trial used for colds, toothaches, asthma, rheumatism, piles and headaches. The ripe fruit is given as laxative. Seeds boiled with milk are believed to be powerful abortificient and remedy for diabetes. Grapefruit (Naringenin) components may prevent obesity. Green tea (Cameliasinensis) components may inhibit growth of breast cancer cells and may heal scars faster (Belguise et al., 2017; Zhang et al., 2016). Honey may reduce cholesterol and wound healing (Al Walili, 2014). Lemon grass (Cymbopogoncitratus), Local name: Isoko- eghu. When administered daily, the aqueous extract of the fresh leaf, has lowered total cholesterol and fasting plasma glucose levels in rats, as well as increasing HDL cholesterol levels.

Lemon grass administration had no effect on triglyceride levels (Adeneye&Agbaje, 2017). Morindacitrifolia (noni) is used in the Pacific and Caribbean islands for the treatment of inflammation and pain (Pande et al., 2015). Human studies indicate its potential cancer preventive effects (Wang et al., 2021). Black cumin (Nigella sativa) has demonstrated analgesic properties in mice. The mechanism for this effect, however, is unclear. In vitro studies support antibacterial, antifungal, anticancer, anti-inflammatory and immune modulating effects (Hajhashemi et al., 2014). Pawpaw (Carica papaya L Caricaceae) local name: Hausa- gwanda, Ibo- okwuluezi, Yoruba- ibepe, sigun, gbegbere is used as insecticide

use for wound dressing (Regnault et al., 2014). Peppermint oil is used in Nigerian ethnomedicine as remedy against irritable bowel syndrome (Capello et al., 2017). Pomegranate contains the highest percentage of ellagitannins of any commonly consumed juice.

Punicalagin, an ellagitannin unique to pomegranate, is the highest molecular weight polyphenol known. Ellagitannins are metabolized into urolithins by gut flora, and have been shown to inhibit cancer cell growth in mice (Heber, 2018). Rauvolfiaserpentina, high risk of toxicity if improperly used extensively for sleeplessness, anxiety and high blood pressure and has been widely used in Nigeria in the management of psychiatric problems. Rose hips – Small scale studies indicate that hips from Rosa canina may provide benefits in the treatment of osteoarthritis. Saw Palmetto can be used for high blood pressure (HBP). The fat soluble extract of this berry has become a leading natural treatment for HBP. This extract when used regularly, has been shown to help keep symptoms of HBP in check (Schneider et al., 2015).

Shiitake mushrooms (Lentinusedodes) are edible mushrooms that have been reported to have health benefits, including cancer preventing properties (Fang et al., 2016). In laboratory research a shiitake extract has inhibited the growth of tumor cells through induction of apoptosis. Both a water extract and fresh juice of shiitake have demonstrated antimicrobial activity against pathogenic bacteria and fungi (Hearst et al., 2021). St. John's wort, has yielded positive results, proving more effective than a placebo for the treatment of mild to moderate depression in some clinical trials (Kuznetsov et al., 2015). A subsequent, large, controlled trial, however, found St. John's wort to be no better than a placebo in treating depression (Gaster& Holroyd, 2020). However, more recent trials have shown positive results (A 2014 meta-analysis concluded that the positive results can be explained by publication bias but later analyses have been more favorable. The Cochrane Database cautions that the data on St. John's word for depression are conflicting and ambiguous.

In a rodent model, stinging nettle reduced LDL cholesterol and total cholesterol. In another rodent study it reduced platelet aggregation. Umckaloabo (Pelargonium sidoides): an extract of this plant showed efficacy in the treatment of acute bronchitis in a controlled trial and is approved for this use in Germany. Willow bark (Salix alba) can be used for a variety of anti-inflammatory and antimicrobial purposes due to presence of salicylic acid and tannins. Has been in use for approximately 6000 yrs and was described in the 1st century AD by Dioscorides (Mahdi et al., 2016). Bitter leaf (Vernoniaamygdalina, L (compositae) local name: Yoruba- ewuro, Hausa-shiwaka, Urhobo- olugbo, a decoction of the leaves is used for stomach pains. it’s also used for skin infections, as an antipyretic, laxative and antidiabetic. Ginkgo (Ginkgo biloba) has been used in traditional medicine to treat circulatory disorders and enhance memory. Although not all studies agree, ginkgo may be especially effective in treating dementia (including Alzheimer's disease) and intermittent claudication (poor circulation in the legs). It also shows promise for enhancing memory in older adults. Laboratory studies have shown that ginkgo improves blood circulation by dilating blood vessels and reducing the stickiness of blood platelets. By the same token, this means ginkgo may also increase the effect of some blood-thinning medications, including aspirin (Adebisi 2000).

Kava kava (Piper methysticum) is said to elevate mood, well-being, and contentment, and produce a feeling of relaxation. Several studies have found that kava may be useful in the treatment of anxiety, insomnia, and related nervous disorders. However, there is serious concern that kava may cause liver damage. It's not clear whether the kava itself caused liver damage in a few people or whether it was taking kava in combination with other drugs or herbs. It's also not clear whether kava is dangerous at previously recommended doses, or only at higher doses. Some countries have taken kava off the market. It remains available in the United States, but the Food and Drug Administration (FDA) issued a consumer advisory in March of 2012 regarding the "rare" but potential risk of liver failure associated with kava-containing products.

Herbal medicine used during pregnancy is common across regions and countries. The prevalence of herbal medicine use during pregnancy is varied across regions and countries. The most commonly consumed herbal medicine during pregnancy include, ginger cranberry, valerian, raspberry leaf, chamomile peppermint (Jellin 2002). The other factors that make women more likely to consume herbal medicines are being primiparas, non-smoking and old age women (Lisha, 2015).

Based on the available researches and literature reviews, the most commonly used herbal medicines during pregnancy are identified;

(1) Ginger (Zingiber Officinale); Common names of ginger, black ginger, cochin ginger is African ginger, black ginger, cochin ginger, gingembre, ginger root, imber and Jamaica ginger. Ginger is used as anti-nausea and anti-emetic for nausea and for hyper-emesis gravidarum. The recommended daily dose of ginger is upto 1g dried powder (Dog 2002). A single blind clinical trial showed ginger as an effective herbal medicine for decreasing nausea and vomiting during pregnancy. A randomized controlled clinical trial conducted on 120 women over 20 weeks of gestation with symptoms of orning sickness showed consumption of 1500mg of dried ginger for 4 days improves nausea vomiting (Willets 2003).

(2) Garlic (Allium sativa); Garlic is a perennial herb cultivated in different countries. It is commonly used as a food ingredient and as a spice in different countries (Bayan 2014). Study conducted on antimicrobial and antifungal activity of garlic showed antibacterial and antifungal features of garlic makes it nutritious to consume during pregnancy (Groppo 2007). Garlic enhances a woman’s immune system, this in turn helps women to have healthy pregnancy and healthy babies. Eating garlic during pregnancy is important to reduce the risk of pre-cramps and protein retention in urine (Charlson 2007).

A randomized controlled study was conducted were 100 primigravida were treated with either garlic tablets (800mg/day) or placebo during the third trimester of pregnancy to determine the effect of garlic tablets supplementation on preeclampsia. With the exception of garlic odour, the few side effects like nausea were reported because of garlic consumption during the third trimester of pregnancy. Pregnancy outcome were comparable in both treated with garlic and placebo group. The study did not repost any incidence of major or minor

malformations in newborn infants and there are no spontaneous abortions of foetuses (Ziaei 2001).

(3) **Cranberry** (vaccinummacrocarpon); there are different types of cranberries; American cranberry, Arandano Americano, ArandanorTrepardoetc (Jellin, 2002). Using cranberry during pregnancy is important to prevent urinary tract infection, stomach ulcer, periondontal disease and influenza (Jepson 2004). A survey conducted on 400 Norwegian postpartum women reported that cranberry was one of the most commonly used herbs during pregnancy, mostly for urinary tract infection.

(4) **Valerian** (valerianaofficinalis); Valerian is a native to Europe and Asia and has naturalized in Eastern North America. It has been extensively cultivated in Northern Europe (Valerian 2017). Valerian is used as a mild sedative to help patience fall asleep and to relieve stress and anxiety. There is a lack of safety information on consumption of Valerian during pregnancy (Loke, 2020). Study conducted on effect of valerian consumption during pregnancy in critical volume and the levels of zinc and copper in brain tissues of mouse foetus showed valerian consumption in pregnancy had no significant effect on brain weight and cerebral cortex volume and copper level in foetal brain (Mohamoudin, 2012).

(5) **Bitter kola**; Bitter kola is a plant that comes from Africa. Africans have been using bitter kola for pregnant women since ages. Drinking bitter kola is good for pregnancy. Bitter kola contains nutrients and vitamins good for pregnancy. For Africans bitter kola is the best supplement for pregnant women. Health benefits of bitter kola include treating nausea, and vomiting, making uterus healthier, strengthening pregnant women and normalizing blood circulation in pregnant women. Bitter kola contains very high caffeine. One bean of bitter kola contains the same amount of caffeine as two glasses of coffee. Thus pregnant women have to drink the recommended dose (one small cup of bitter kola in a day (Drhealth, 2023).

Laelago (2019) noted that the use of herbal medicine has been on an increase over time. The most commonly used herbs are ginger, cranberry, valerian, raspberry leaf, chamomile, peppermint, thyme, fenugreek, green tea, sage, anise, garlic and bitter kola.

Effects of herbal medicine on foetus and pregnant women

A literature review reported that ginger is not a safe herb, it is a potential abortifiacient with high doses (> 100mg daily consumption). Higher doses of ginger can cause thinning of blood, stomach discomfort and heartburn (Yoke, 2020). Excessive use of garlic should be avoided in early pregnancy. Pregnant women with thyroid disorders should avoid its use. Pregnant women should also avoid using garlic prior to surgery including caesarean as it may interfere with blood clotting. Another untoward effect of using garlic during pregnancy is that it may aggravate heartburn (Parle, 2015).

A study conducted by Mohamoudin (2021) on mouse foetus presented that consumption of valerian during pregnancy had significant decrease in the level of zinc in the brain. This finding suggests that valerian use during pregnancy should be limited. Using very high doses

of bitter kola is not recommended. A very high dose of bitter kola is not good for the uterus of the woman (Thomas 2021).

Laelago (2019) in a study on "herbal medicine use during pregnancy: Benefits and untoward effects" revealed that using herbal medicine occasionally causes trouble. Heartburn, premature labour, miscarriage, increase in blood flow, abortion and allergic reactions are the common troubles of herbal medicine use during pregnancy. Using herbal medicine during the first trimester and the third trimester is unsafe for the foetus. Thus. pregnant women should talk to health professionals before consuming any herbal medicines. The unfortunate consequences of using herbal medicine during pregnancy need further study for various herbs. Therefore, clinical trial research should be done to identify unfortunate consequences of herbal medicine use during pregnancy

On the other hand, Kam, Barnett and Douglas (2019) in a study on "Herbal medicines and pregnancy: A narrative review and anaesthetic considerations", stated that the use of herbal medicines by pregnant women varies among different countries, ranging from 4.3% in Sweden to 69% in Russia. The aim of the narrative review was to evaluate the benefits and safety of common herbal medicines used during pregnancy. A systematic literature searches from 1995 to February 2018 was performed using a variety of electronic databases. The levels of evidence of the clinical studies were graded using the Oxford Centre for Evidence-Based Medicine levels of evidence guidelines. From the 736 articles retrieved, 69 articles were used for this review. Findings of the study showed that ginger was extensively investigated and consistently found to decrease nausea and vomiting associated with pregnancy. There was insufficient evidence concerning the efficacy of other herbal medicines such as garlic, cranberry and raspberry in pregnancy. Much of the literature were based on case reports with limited pharmacodynamic/kinetic studies. Thus, there are no clear data on the adverse herb–drug interactions during anesthesia. As the risks of these interactions are unknown, it would be prudent for anesthetists to explicitly ask their patients about their use of herbal medicines before surgery and prior to labor and birth.

In a recent study by Makombe et al. (2023), it was reported that use of herbal medicine during pregnancy and labor is globally associated with adverse obstetric outcomes such as uterine rupture and fetal distress. The study explored the perceptions of women on the use of herbal medicine during pregnancy and labour in rural Malawi. The study employed a qualitative descriptive (QD) design on the purposively identified participants (women with parity ≥2≥2), residing in four villages (Kagona, Champsinja, Mthupi and Manja) of Traditional Authority Malili, in Lilongwe rural district, Malawi. Qualitative data was collected through four Focus Groups of 6–8 women in each group that were conducted in each village. Data analysis was performed inductively, using reflexive thematic analysis approach. Findings of the study showed that a total of 28 women of reproductive age 20 and above; 20–24 (32.14%), married (75%), average of 3 deliveries (57.14%), primary school education (75.0%), and Christians (92.86%) were recruited and interviewed. Two main themes emerged from the narratives: (1) perceived benefits of using herbal medicine: (i) hastens labour, (ii) prevents pregnancy complications and (iii) prevents and treats illnesses,

and (2) perceived risks of using herbal medicine: (i) perceived maternal risks, (ii) perceived fetal risks.

Makombe (2023), concluded that in rural Malawi, the practice of using herbal medicine during pregnancy and labour is perceived as both risky and beneficial to women. These perceptions were shaped by the exposure to either personal or other people's experiences, hence the continued practice. Therefore, inclusion of health education topics on maternal complications due to use of herbal medicine among women can help reduce maternal and neonatal mortality rates in rural Malawi. Further research is also warranted to explore accessibility and community pathway systems for herbal medicine use during pregnancy and labour among the pregnant women.

John and Shantakumari (2015) reported that the prevalence of the herbal medicines use is on the rise across the world, especially amongst pregnant women. The scenario in the Middle Eastern region was reviewed to explore the prevalence, usage pattern, motivation, and attitude towards use of herbal medicine by pregnant women. Literature published up to December 2012 showed the prevalence of herbal medicine use varied between 22.3–82.3%, implying a rising trend in the utilization of herbal medicine during pregnancy. Findings of the study showed that the most common herbs used were peppermint, ginger, thyme, chamomile, sage, aniseed, fenugreek, and green tea. The most common reasons for use included the treatment of gastrointestinal disorders and cold and flu symptoms. The majority of women used these products during their first trimester, and did not reveal this information to their physician. Most women were advised by family and friends to use herbal medicines and believed they were more effective and had fewer side effects than modern medicine especially during pregnancy. In conclusion, the use of herbal medicine is prevalent among pregnant women in the Middle Eastern region and healthcare providers need to seek information pertaining to their use

Theoretical framework

This study adopted the health Belief Model and the Theory of Reasoned Action (TRA)

Health Belief Model (Rosenstock, 1950s)

The Health Belief Model (HBM) would be applicable in this study as a conceptual framework to provide basic theoretical bases for understanding and interpreting ante-natal services and reduction of maternal mortality among pregnant women. The HBM is one of the theories in health behavior propounded by Rosenstock (1950s); thus, it is utilized to determine the effect of herbal medicine on pregnant women.

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 person's 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 does not consider emotional factors such as fear and denial. According to Rosenstock (1950s), using this model, individual intention to choosing lifestyle/behaviours are determined using the five domain of HBM namely: perceived severity, perceived susceptibility, perceived benefits, perceived barrier and cues to action.

Perceived severity

This is pregnant women's belief of ugly situation associated with patronage of traditional medicine, and the complication underlying her lack of effective utilization of ante-natal care. Cultural practice and belief makes some women not to utilize antenatal services. On their own, they are likely to express preference for ante natal care and other medically sound health services which helps to prevent maternal complications, morbidity and mortality, but pregnant women sometimes rejects ante natal care just to please the husband and members of the family and community who are against such services.

Perceived susceptibility

Perceived susceptibility is the pregnant woman's belief in her vulnerability to maternal mortality or other conditions that would adversely affect and predispose her and the fetus to risk if she patronize traditional medicine. The more that a pregnant woman believes she is at such great risk, the more likely she adopts particular health related behavior like ante natal services to minimize or escape from those risks. For instance, she may elect hiding from husband and others who are against such services when visiting a health facility for ante natal care.

Perceived benefits

Perceived benefits are the pregnant woman's belief that patronizing traditional medicine as against effective utilization of antenatal care during pregnancy will earn her acceptance, peaceful home and love from husband and the society. She knows this is a temporary satisfaction and an injury to her conscience but she bears it for peace to reign. A defense to this is engaging in positive health behaviours and sublimation to socially accepted schemes.

Perceived barriers

This refers to the pregnant woman's perception of several difficulties preventing her from accessing ante natal services and subjecting her to usage of traditional medicine. These barriers range from lack of accessibility, poor road network, affordability, availability of the service and so on.

Cues to action

Cues to action refers to factors that help a pregnant woman make health related decision about health services including ante natal care. These range from advice of relatives, friends, health care professionals as well as awareness of her human right as a potential woman. They are crucial agents that guides a pregnant woman takes decision about her preferred life style. A pregnant woman's belief and attitudes toward traditional medicine or ante natal services

are strongly influenced by the stories and advice that they hear from parents, couples, health educators, movies, relatives and exposure to life events that befall others.

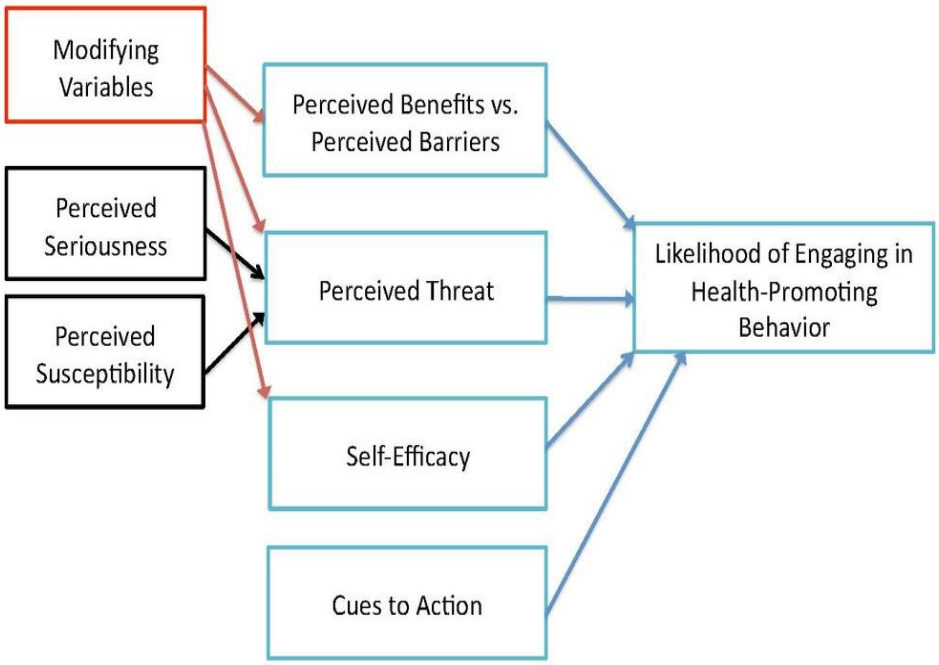

Fig. 1: Diagrammatic Representation of the Health Belief Model
Source: Siddiqui, Ghazal, Bibi, Ahmed &Sajjad (2016)

Application of the theory to the study

In this study, the model suggests that knowledge of both perceived susceptibility and perceived severity must exist before a perceived threat becomes sufficient to motivate a readiness for action and behavour change. If a pregnant woman perceived herself as susceptible to the risk associated with usage of traditional medicine as against proper age, non-utilization of ante natal care, and predisposition to maternal mortality; she resorts to available means of up-taking these services by avoiding her community to be free from exposure to pregnancy-related risk. The modifying factors like traditional beliefs, religious belief, and personal beliefs, age, experience and social class may also influence the level of acceptance of ante natal care. The model also imply that pregnant women should be encouraged to take responsibility for their own health condition by accepting some positive practices like when the family economic status is appreciative to avoid remaining single at adulthood and menopause. The study will be of good guide to pregnant women by discovering the effectiveness of herbal medicine on some ailments such as nausea, vomiting, improvement of foetal growth, inducing labour, or pregnancy unrelated ailments, such as cold and flu symptoms as well as nutritional benefits.

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 behaviour. Attitude consists of beliefs about the consequences of performing the behaviour 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 behaviour in question" (Ajzen&Fishbein, 1975). To put the definition into simple terms: a person's volitional (voluntary) behaviour is predicted by his/her attitude toward that behavior and how he/she thinks other people would view them if he/she 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 said, 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.

Application of the theory to the study

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. This theory will help give good sense of belonging to pregnant women by adhering to proper dosage of this herbs, so as to avoid taken overdose and when not to take the herbs. This in turn will help reduce health problems among pregnant taken herbs.

Summary of literature review

This chapter reviewed literature on the effect of herbal medicine on pregnant women. Relevant literatures have been justified concerning effect of herbal medicine on pregnant women. Many scholars have defined 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. They also noted that herbal medicines are commonly made from the leaves, roots, bark, seeds, and flowers of plants. The authors whose works were consulted agreed that herbal medicine has negative effects on pregnancy especially during the first and third trimester. The commonly used herbal medicine by pregnant women were also highlighted to include ginger cranberry, valerian, raspberry leaf, chamomile peppermint (Jellin 2002).

The striking contribution was that of Olayinka and Osamudiamen (2013) who stated that stress is an endemic problem among nurses, and contributes to their health problems as well as decreases their efficiency. They added that nursing profession is known to be stressful throughout the world and has detrimental effects on the physical and psychological well-being of an individual's health. Also worthy of note is the contribution by Nekzada and Tekeste (2013) who highlighted that health problems that are known to be associated with job stress among health care workers have been classified based on physiological, psychological and behavioural factors. This study is very timely and necessary because it will examine the influence of stress on work behaviour among nurses in University of Calabar Teaching Hospital (UCTH), where no such research work has been done before. Consequently, the study will bridge the gap in insufficient research study on the influence of stress on work behaviour among nurses in the area of study. Useful recommendations will be proffered in this study to cope work stress among nurses in the study area.

RESEARCH METHODOLOGY

Research design

For the purpose of achieving the desired objective of this study, descriptive survey design was used. Survey research is a method that is used to solicit responses from persons believed to have the desired information by asking questions (Otu, 2018). The design helped the researcher to ask questions, get answers and draw generalization based on the respondents' data collected. Survey research was chosen for this work because it is an efficient means of collecting data from a specific number of respondents representing the entire population.

Setting for the study

This study was carried out in the Nigeria Navy Reference Hospital Calabar. The hospital is located at Plot 1 Archbishop ArchibongArchibong Avenue off Murtala Mohammed Highway, Calabar, Cross Rivers State. Nigerian Navy Reference Hospital (NNRH) Calabar is one of 3 tertiary health facilities operated by the Nigerian Navy. It is a 100-bed, world class reference hospital located in the heart of Calabar, a scenic city in southern Nigeria. The hospital is equipped with cutting edge diagnostic and surgical equipment. NNRH Calabar was established in response to the need for expanded health services provision to personnel of the Nigerian Armed Forces and the general civilian population. The hospital is also effectively manned by highly skilled medical and allied professionals hence its slogan "Trusted Hands, Touching Lives".

NNRH Calabar was established by NNO in 1982. It started as a 39 bed hospitals located on Old Secretariat Road in Calabar. The hospital has catered for the healthcare needs of Officers and Men within the Eastern Naval Command, their families as well as civilians within the general Calabar area. With increasing population as well as growth in the number of Service personnel in the area, the old hospital has struggled to meet the attendant challenges due, in part, to a lack of space for expansion. To ameliorate these challenges, the Nigerian Navy

embarked upon the task of completing the hitherto planned Nigerian Navy Reference Hospital in Calabar.

NNRH Calabar was conceptualized in 1976 but construction work started in 1980. The initial contractors were Messrs Philips Export BV of Netherlands for the supply and installations of electrical and mechanical materials, medical equipment and furniture.Theproject was handed over to the Ministry of Defense (MOD) in 1994, but construction work on the complex stopped sometime in 1995.

Naval Headquarters formally got approval from the MOD in June 2012 to take over and complete the construction. Thereafter responsibility for the supervision of the construction was shifted from an initial Project Monitoring Team (PMT) which worked through direct labour to a contractor - Messrs ULO Consultants Ltd, who is being supervised by PIMED at NHQ.

The Nigerian Navy Reference Hospital Calabar offers the highest quality healthcare services. The hospital is equipped with modern diagnostic equipment which includes Magnetic Resonance Imaging machine, digital X-Ray machines, and Computerized Tomography machines among others. NNRH Calabar is poised to becoming a teaching hospital for House Officers and Resident Doctors.

The hospital periodically conducts medical outreach programmes to communities within the Calabar general settlements as part of its corporate social responsibilities. Auspicious occasions such as the World AIDS Day, World Malaria Day, among others, are used as opportunities to offer free medical services to the communities and raise awareness on relevant health issues.

Target population of the study

The target population of this study is made up of all pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar.As at the time of sampling, there were a total of Five Hundred and Forty-Eight (548) registered pregnant women in the Nigerian Navy Reference Hospital Calabar (NNRH ANC Register, 2023).

Table 1: Target population of respondents based on months of pregnancy

S/N	Months of Pregnancy	Number of pregnant women
1	One to two months pregnancy	11
2	Three months pregnancy	71
3	Four months pregnancy	79
4	Five months pregnancy	77
5	Six months pregnancy	86
6	Seven months pregnancy	97
7	Eight months pregnancy	74
8	Nine months pregnancy	53
	Total	548

Source: NNRHANC Register (2023)

Sampling, procedure and sample size

Simple random sampling technique was used for this study. AccordingtoOtu (2018) simple random sampling technique is a means by which researchers give every number of his/her population equal and independent opportunity of being selected. The main purpose of using simple random sampling technique is to compose a sample that will yield research data that can be generalized to larger population. The technique employed by the researcher is the hat and draw (balloting) method. Here, the required sample was randomly drawn for the study.

Using Taro Yamane's formula to determine the sample size, the researcher arrived at a total of 231 pregnant women as the sample size for this study. This formula was used since the population of the study is known (finite). The formula is given as follows;

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

Where n = Sample size
N = Population size
e = Level of precision (5%)

$$n = \frac{548}{1 + \ [548\ x\ (0.05)^2]}$$

$$n = \frac{548}{1 + \ [548\ x\ 0.0025]}$$

$$n = \frac{548}{1 + \ [548\ x\ 0.0025]}$$

$$n = \frac{548}{1 + 1.37}$$

$$n = \frac{548}{2.37}$$

$$n\ = 231\ pregnancy\ women.$$

Table 2: Sample size of population

S/N	Unit/Department	Frequency	Percentage (%)
1	One to two months pregnancy	5	2
2	Three months pregnancy	30	13
3	Four months pregnancy	33	14
4	Five months pregnancy	33	14
5	Six months pregnancy	36	16
6	Seven months pregnancy	41	18
7	Eight months pregnancy	31	13
8	Nine months pregnancy	23	10
	Total	231	100%

Source: NNRH ANC Register (2023)

Instrument for data collection

The instrument for data collection was a well-structured questionnaire called Effect of Herbal Medicine on Pregnant Women Attending Antenatal Questionnaire (EHMPWAAQ). The questionnaire was constructed by the researcher and has 2 major parts:

Part A: Bio data of respondents

Part B: Which has 3 sections with a total of 30 items elicited information on the variables of the study as follows;

Section 1: Factors that encourage the utilization of herbal medicine among pregnant women

Section 2: Common herbal remedies used among pregnant women

Section 3: Effects of herbal medicine on foetus and pregnant women

More so, the items were designed on a 4-point Likert scale format for respondents to indicate their degree of agreement or disagreement as follows:

Strongly Agree	(SA)	4 point
Agree	(A)	3 point
Disagree	(D)	2 point
Strongly Disagree	(SD)	1 point

Validation and reliability

To ensure validity of instrument, face validity was adopted for the study. In this case, the researcher submitted the instrument for thorough assessment by the research supervisor and other experts in test and measurements in the Calabar Study Center, NOUN. All contributions by the supervisor and other experts were taken into consideration in the final draft of the instrument. Furthermore, reliability for this instrument was ensured using the test-retest reliability method.

Pilot study

The pilot study was carried out on 20 pregnant women from Teaching Hospital, Calabar who had same characteristics with pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar.

Method of data collection

A letter of introduction from the National Open University of Nigeria (NOUN), Calabar Study Center was issued to the pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar through the Head of Nursing Services to engage pregnant women in the hospital in the research study. The researcher administered copies of the questionnaire to the pregnant women during their antenatal clinics and other visits the hospital because this time was appropriate for them to participate in the study. The researcher made use of two (2) research assistants. It took a duration of 4 weeks to administer and retrieve copies of questionnaire from the respondents. At the end of the exercise, all the copies of questionnaire administered were retrieved (100% retrieved).

Method of data analysis

Data obtained from 231 copies of questionnaire successfully retrieved from the respondents were subjected to descriptive statistics using frequencies and percentages and presented in tables. The hypothesis was tested with chi-square (X^2) at 0.05 probability level of significance.

Ethical consideration

Consent was gotten from the respondents. No respondent was compelled to participate in the study. They were assured of confidentiality, no name was required and all information gotten was purely for academic purpose.

Data Presentation of on Respondent's demographic variables

Table 3 presents the socio-demographic variables of the respondents

Table 3: Socio-demographic variables of respondents

Variables	Frequency	Percentage (%)
Type of visit		
First Visit	13	6
Not First Visit	218	94
Total	231	100
Marital Status		
Single	32	14
Married	189	82

Separated	10	4
Total	231	100
Religion		
Christianity	123	53
Islam	67	29
African Traditional Religion	41	18
Total	231	100
Educational Qualification		
No formal education/	5	2
Primary education	32	14
Secondary education	119	52
Tertiary education	75	32
Total	231	100

The results of socio-demographic data in table 3 showed that majority of the respondents 218 (94%) were already registered clients while the remaining 13 (6%) were visiting the hospital for the first time for registration in the antenatal clinic.

Concerning the marital statuses of the respondents, it was revealed that majority 189(82%) were married, 32(14%) were single while 10 (4%) were separated.

The results also showed that out of the 231 respondents, majority being 123 (53%) were Christians, 67 (29%) were Muslims while 41 (18%) were African Traditional Worshippers.

Finally, the analysis on educational qualification of respondents showed that 5 (5%) did not have any formal education. Those who had primary education were 32 (14), a total of 119 (52%) respondents had secondary education, while those who had tertiary education were 75 (32%).

Presentation and analysis of data

In the analysis below, strongly agreed (SA) and agreed (A) are coded as Agreed while Disagreed (D) and strongly disagreed (SD) are coded as disagreed.

Research question 1: What are the factors that encourage the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar?

Table 4: Factors that encourage the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar
(N = 231)

S/N	Statements	Agreed	%	Disagreed	%	Total	%
1	My religionpromotes herbal medication during pregnancy	181	78	50	22	231	100

2	I patronize herbal medicine during pregnancy due to lack of finance for drugs	163	71	68	29	231	100
3	Dissatisfaction with the behavior of clinic staff is one of the reason why I patronize herbal medicine during pregnancy	212	92	19	8	231	100
4	There is always a social pressure to take herbal medication during pregnancy	190	82	41	18	231	100
5	I patronize herbal medicine during pregnancy due to cultural beliefs and myths	221	96	10	4	231	100
6	Lack of privacy within the conventional clinic environmentprompts pregnant women to settle for herbal medicine which they can take in their closets	201	87	30	13	231	100
7	I take herbal medicine because I live with my mother/ and or grandmother	210	91	21	9	231	100
8	Refusing herbal medicine from my mother-in-law is often very difficult as it would show disrespect	209	90	22	10	231	100
9	This is my first pregnancy so I do not really know if it is safe to take herbal medication	195	84	36	16	231	100
10	With my level of education, I know that some herbal medicines are not safe for pregnancy	204	88	27	12	231	100

Field Survey, 2023

Results in table 4revealed that out of the 231 respondents, 818 (78%) agreed that their religionpromotes herbal medication during pregnancy while 50 (22%) disagreed. Majority of the respondents, 163 (71%) agreed that they patronize herbal medicine during pregnancy due to lack of finance for drugs, while 68 (29%) disagreed. 212 (92) agreed that dissatisfaction with the behavior of clinic staff is one of the reason why I patronize herbal medicine during pregnancy while 19 (8%) disagreed.

On the item which states "there is always a social pressure to take herbal medication during pregnancy", a total of 190 (82%) agreed while 41 (18) disagreed. A total of 221 (96%) agreed that they patronize herbal medicine during pregnancy due to cultural beliefs and myths while 10 (4%) disagreed. On item 6 which said "Lack of privacy within the conventional clinic environment prompts pregnant women to settle for herbal medicine which they can take in their closets", 201 (87%) agreed while 30 (13%) disagreed. 210 (87%) agreed that they take herbal medicine because they live with their mother/ and or grandmother while 21 (9%) disagreed. On the item which states "Refusing herbal medicine from my mother-in-law is often very difficult as it would show disrespect", a total of 209 (90%) respondents agreed while 22 (10%) disagreed. 195 (84%) agreed that it was their first pregnant so they did not know if it was safe to take herbal medication while 36 (16%) disagreed.

Finally, a total of 204 (88%) agreed that with my level of education, I know that some herbal medicines are not safe for pregnancy while 27 (12%) disagreed.
From the above table, it could be summarized that the factors that encourage the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar include religion/culture (78%); lack of finance (71%), behavior of clinic staff (92%), social pressure (82%), cultural beliefs and myths (96%), lack of privacy within the conventional clinic environment (87%), living with mother/ and or grandmother (91%) fear of disrespecting mother-in-law by refusing herbal medicine (90%), age/parity and level of education (88%).

Research question 2: What are the common herbal remedies used among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar?

Table 5: Common herbal remedies used among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar

S/N	Statement	Agreed	%	Disagreed	%	Total	%
1	I have used Aloe vera since I became pregnant	210	91	21	9	231	100
2	I have used lemon grass since I became pregnant	211	91	20	9	231	100
3	I have used ginger since I became pregnant	222	96	9	4	231	100
4	I have used garlic since I became pregnant	210	91	21	9	231	100
5	I have used cranberry since I became pregnant	220	95	11	5	231	100
6	I have used bitter kola since I became pregnant	211	91	20	9	231	100
7	I have used green tea since I became pregnant	204	88	27	12	231	100

8	I have used herbal enema during my current pregnancy	195	84	36	16	231	100
9	I have used valeriansince I became pregnant	50	22	181	78	230	100
10	I have used peppermintsince I became pregnant	103	45	128	55	231	100

Results in table 5 revealed that out of the 231 respondents, 210 (91%) respondents agreed that they have used aloe vera since they became pregnant while 21 (9) disagreed. 211 (91%) agreed that they have used lemon grass since they became pregnant while 20 (9%) disagreed. A total of 222 (96%) agreed that they have used ginger since they became pregnant while the remaining 9 (4%) disagreed. 210 (91%) agreed that they have used garlic since they became pregnant while 21 (9%) disagreed. A total of 220 (95%) respondents agreed that they have used cranberry since they became pregnant while 11 (5%) disagreed.

Majority of the respondents, 211 (91%%) agreed that they have used bitter kola since they became pregnant while 20 (9%) disagreed. On the statement, "I have used green tea since I became pregnant", 204 (88%) respondents agreed while 27 (12%) disagreed. 195 (84%) said they have used herbal enema during their current pregnancy while 36 (16%) disagreed. Out of the 231 respondents, 50 (22%) said they have used valerian since they became pregnant while 181 (78%) disagreed. Finally, a total of 103 (45%) respondents agreed that they have used peppermint since they became pregnant while 128 (55%) disagreed.
From the above table, it could be summarized that there is significant usage of herbal medicine amongst pregnant women attending antenatal in Nigerian Navy Reference Hospital, Calabar. The common herbal medicine often used by these pregnant women included aloe vera (91%), lemon grass (91%), ginger (96%), garlic (91%), cranberry (95%), bitter kola (91%), green tea (91%), herbal enema (84%), valerian (22%) and peppermint (45%).

Research question 3: What are the effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar?

Table 6: Effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar

S/N	**Statement**	Agreed	%	Disagreed	%	Total	%
1	High doses of herbal medicine like ginger can cause miscarriage	216	94	15	6	231	100
2	Some herbal medicine causes stomach discomfort and heartburn	195	84	36	16	231	100
3	Some herbal medicine reduces the body's vital minerals including zinc which is	210	91	21	9	231	100

	necessary for healthy pregnancy						
4	A very high dose of bitter kola is not good for the uterus of the woman	200	87	31	13	231	100
5	Herbal medicine triggers pre-mature labour	220	95	11	5	231	100
6	Abortion and allergic reactions are common troubles of herbal medicine use during pregnancy	211	91	20	9	231	100
7	Using herbal medicine during the first trimester and the third trimester is unsafe for the foetus	220	95	11	5	231	100
8	Herbal medicine can harm the growing foetus in the worm	204	88	27	12	231	100
9	The effect of herbal medicine is 50-50 good and bad	195	84	36	16	231	100
10	If I have my ways, I will not take herbal medicine as it has more negative impact on my overall wellbeing than the benefits	211	91	20	9	231	100

Results in table 6 revealed that out of the 231 respondents, 216 (94%) agreed that high doses of herbal medicine like ginger can cause miscarriage while 15 (6%) disagreed. 195 agreed that some herbal medicine causes stomach discomfort and heartburnwhile 36 (16%) disagreed. Concerning the item which states “Some herbal medicine reduces the body’s vital minerals including zinc which is necessary for healthy pregnancy”, 210 (91%) agreed while 21 (9%) disagreed. 200 (87%) respondents agreed that a very high dose of bitter kola is not good for the uterus of the woman while 31 (13%) disagreed. 220 (95%) agreed that herbal medicine triggers pre-mature labour while 11 (5%) disagreed.

More so, a total of 211 (91%) agreed that abortion and allergic reactions are common troubles of herbal medicine use during pregnancy while 20 (9%) disagreed. 220 (95%) respondents agreed that using herbal medicine during the first trimester and the third trimester is unsafe for the foetus while 11 (5%) disagreed. On item 8 which said “Herbal medicine can harm the growing foetus in the worm”, 204 (88%) agreed while 27 (12%) disagreed. A total of 195 (84%) also agreed that the effect of herbal medicine is 50-50 good and bad while 36 (16%) disagreed. Finally, 211 (91%) respondents agreed that if they have their ways, they will not take herbal medicine as it has more negative impact on their overall wellbeing than the benefits while 20 (9%) disagreed.

From the above table, it could be summarized that miscarriage (94%), stomach discomfort and heartburn (84%), reduction in body’s vital minerals including zinc (91%), negative

effects on the uterus (87%), pre-mature labour (95%), abortion and allergic reactions (91%), negative effects on the foetus (95%) and causing harm on the growing foetus (88%) were some of the identified effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar.

Result of research hypothesis

Hypothesis: There is no significant effect of herbal medicine among pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.

Table 7: Chi-square (x^2) analysis of the relationship between herbal medicine and the health of pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar. (n= 231)

Area of work	**Stress**		**Total**	**X^2**	**p-level**
	Negative effect	No negative effect			
Usage of herbal medicine	131 (56.71%)	50 (21.65%)	181 (78.35%)		
None usage of herbal medicine	33 (14.29%)	17 (7.36%)	50 (21,65%)	94.20^a	.000
Total	164 (71%)	67 (29%)	231 (100%)		

* Significant at ($p<.05$); df= 1; critical $X^2 = 3.841$

The result in table 7 shows that the calculated X^2 value of 94.20^a was greater than the critical X^2 value of 3.841 at <0.05 level of significance and 1 degree of freedom. The null hypothesis was therefore rejected. This implies that, there is a significant effect of herbal medicine among pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.

Discussion of findings

This section discusses the findings made in this research.

Factors that encourage the utilization of herbal medicine among pregnant women

The findings of this study as presented in table 3 revealed that the factors that encouraged the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar include religion/culture (78%); lack of finance (71%), behavior of clinic staff (92%), social pressure (82%), cultural beliefs and myths (96%), lack of privacy within the conventional clinic environment (87%), living with mother/ and or grandmother

(91%) fear of disrespecting mother-in-law by refusing herbal medicine (90%), age/parity and level of education (88%).

The finding agrees with that of Laelago (2019) who stated while highlighting the factors promoting the use of herbal medicine, that the use herbal medicine during pregnancy is associated with educational status of women, income level of household and age of women.

Furthermore, the finding is in tandem with Jewkes, et al. (2014) who stated that some factors underlying the use of herbal medicine include 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.

Common herbal remedies used among pregnant women

The findings of this study as presented in table 4 revealed that there is significant usage of herbal medicine amongst pregnant women attending antenatal in Nigerian Navy Reference Hospital, Calabar. The common herbal medicine often used by these pregnant women included aloe vera (91%), lemon grass (91%), ginger (96%), garlic (91%), cranberry (95%), bitter kola (91%), green tea (91%), herbal enema (84%), valerian (22%) and peppermint (45%).

The finding agrees with that of Jellin (2002) who stated that herbal medicine use during pregnancy is common across regions and countries. The most commonly consumed herbal medicine during pregnancy according to Jellinincludes ginger cranberry, valerian, raspberry leaf, chamomile peppermint

The finding is consistent with the work of Laelago (2019) which posited that the use of herbal medicine has been on an increase over time. Laelago highlighted that the most commonly used herbs are ginger, cranberry, valerian, raspberry leaf, chamomile, peppermint, thyme, fenugreek, green tea, sage, anise, garlic and bitter kola.

Effects of herbal medicine on foetus and pregnant women

The findings of this study as presented in table 5 revealed miscarriage (94%), stomach discomfort and heartburn (84%), reduction in body's vital minerals including zinc (91%), negative effects on the uterus (87%), pre-mature labour (95%), abortion and allergic reactions (91%), negative effects on the foetus (95%) and causing harm on the growing foetus (88%) were some of the identified effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar.

The finding agrees with that of a literature review by Yoke (2020) which reported that ginger is not a safe herb, it is a potential abortifiacient with high doses (> 100mg daily consumption). Higher doses of ginger can cause thinning of blood, stomach discomfort and heartburn. Parle (2015) affirmed this position by stating that pregnant women with thyroid disorders should avoid its use. Pregnant women should also avoid using garlic prior to surgery including caesarean as it may interfere with blood clotting. Parle added that an untoward effect of using garlic during pregnancy is that it may aggravate heartburn.

Relationship between use herbal medicine and the health of pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.

Findings of the study revealed that there is a significant effect of herbal medicine among pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.This implies that pregnant women who patronizes herbal medicine are exposed to several negative effects which in turn, affects their health and the foetus.

The findings agree with Laelago (2019) who revealed that using herbal medicine occasionally causes trouble such as heartburn, pre-mature labour, miscarriage, increase in blood flow, abortion and allergic reactions. Laelago further noted that using herbal medicine during the first trimester and the third trimester is unsafe for the foetus. Thus, pregnant women should talk to health professionals before consuming any herbal medicines.

This finding is in direct inconsistence with Kam, Barnett and Douglas (2019) who revealed that ginger was extensively investigated and consistently found to decrease nausea and vomiting associated with pregnancy. Kam et al noted that there was insufficient evidence concerning the efficacy of other herbal medicines such as garlic, cranberry and raspberry in pregnancy.

Summary of the study

The research work was carried out to examine the effect of herbal medicine on pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar. Through simple random sampling technique, 231pregnant women were purposively selected for the study. Data was collected through the researcher's constructed questionnaire divided into two sections, A and B. Section A asked question on the respondents' demographic data while section B had 30 items that measured the effect of herbal medicine on pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabarusing a 4 point Likert scale.

The analysis of results was carried out using simple percentage while the hypothesis was tested with Chi-square (X^2) at 0.05 probability level of significance

The findings indicated that factors that encouraged the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar include religion/culture (78%); lack of finance (71%), behavior of clinic staff (92%), social pressure (82%), cultural beliefs and myths (96%), lack of privacy within the conventional clinic environment (87%), living with mother/ and or grandmother (91%) fear of disrespecting mother-in-law by refusing herbal medicine (90%), age/parity and level of education (88%).
It was further revealed that there is significant usage of herbal medicine amongst pregnant women attending antenatal in Nigerian Navy Reference Hospital, Calabar. The common herbal medicine often used by these pregnant women included aloe vera (91%), lemon grass (91%), ginger (96%), garlic (91%), cranberry (95%), bitter kola (91%), green tea (91%), herbal enema (84%), valerian (22%) and peppermint (45%).

The findings also showed that miscarriage (94%), stomach discomfort and heartburn (84%), reduction in body's vital minerals including zinc (91%), negative effects on the uterus (87%),

pre-mature labour (95%), abortion and allergic reactions (91%), negative effects on the foetus(95%) and causing harm on the growing foetus (88%) were some of the identified effects of herbal medicine on foetus and pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar.

Finally, it was revealed that there is a significant effect of herbal medicine among pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar.This implies that pregnant women who patronizes herbal medicine are exposed to several negative effects which in turn, affects their health and the foetus.

In view of the above findings, health workers and health related agencies should intensify campaigns against myths, poor knowledge as well as other factors that influence the utilization of herbal medicine among pregnant women.

Conclusion

From the findings of the study, the following conclusions were made:

1. Factors that encouraged the utilization of herbal medicine among pregnant women attending antenatal in Nigeria Navy Reference Hospital Calabar include religion/culture; lack of finance, behavior of clinic staff, social pressure, cultural beliefs and myths, lack of privacy within the conventional clinic environment (, living with mother/ and or grandmother, fear of disrespecting mother-in-law by refusing herbal medicine, age/parity and level of education.
2. There is significant usage of herbal medicine amongst pregnant women attending antenatal in Nigerian Navy Reference Hospital, Calabar. The common herbal medicine often used by these pregnant women included aloe vera, lemon grass, ginger, garlic, cranberry, bitter kola, green tea, herbal enema, valerian and peppermint.
3. The effects of herbal medicine on foetus and pregnant women include miscarriage, stomach discomfort and heartburn, reduction in body's vital minerals including zinc, negative effects on the uterus, pre-mature labour, abortion and allergic reactions, negative effects on the foetus and causing harm on the growing foetus.

Generally, the study concludes in line with the test of hypothesis, that there is a significant effect of herbal medicine among pregnant women attending antenatal care in Nigeria Navy Reference Hospital Calabar. This implies that pregnant women who patronizes herbal medicine are exposed to several negative effects which in turn, affects their health and the foetus.

Recommendations

From the conclusion so made, the following recommendations were made:

1. Medicine herbs should be taken with caution because of some undesirable side effects associated with their use
2. Excessive use of herbal medicine such as garlic should be avoided in early pregnancy. Pregnant women with thyroid disorders as well as those going for surgery including caesarean section should avoid using garlic prior as it may interfere with blood clotting.
3. The government should utilize all forms of media to create awareness on the negative effects of herbal medicine in order to enable pregnant women make informed decisions before using any herbal medicine.
4. Thus. pregnant women should talk to health professionals before consuming any herbal medicine in order to prevent harm to the foetus and their health

Suggestions for further studies

The researcher suggests the following topics for further research studies:

1. Replication of the research topic in another area of study inclusive of other sub-variables that were not captured in this research study.
2. Cultural practices and the health of pregnant women in CalabarMunicipality of Cross River State.

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