

CHAPTER ONE

INTRODUCTION

In recent times, the use of herbal drugs in the treatment of illnesses is becoming ever more popular especially in developing nations. According to Tamuno, Omole-Ohonsi and Fadare (2010), herbal drugs (sometimes referred to as herbal medicine) are in relative high demand, perhaps due to the efficacy claims of herbal drug in contrast to orthodox medicine which many see as synthetic and easily adulterated. However, the studies of Pelletier (2004); Talalay (2001) and Elvin-Lewis (2001) indicate that although herbal drugs have shown promising potentials with efficacy claims, many of them remain untested thus raising serious health issues concerning herb use vis-à-vis available health information. Though some herb users doubt the efficacy of herbal drugs, a good number is ready to vouch for its potency. Shaw (1998) observes that in many developing countries, a large proportion of the population relies on traditional practitioners and their armamentarium of medicinal plants in order to meet healthcare needs. Although modern medicine may exist side-by-side with such traditional practice, herbal drugs have often maintained their popularity for historical and cultural reasons. On the other hand, Schulz, Hansel and Tyler (2001) point out that some methods of folk healing throughout the world commonly used herbs as part of their tradition in healing of ailments and providing some examples of arrays of important healing practices around the world that used herbs for this purpose.

The World Health Organization (2004) promotes and strengthens internationally coordinated information exchange and safety monitoring of herbal drugs among member states. Different forms of herbal medicines exist such as herbal supplements or pure medicinal herbs. Whatever the type, herbs serve as both medicine and food; however, their efficacy remains a subject of clinical and empirical study. Citing World Health Organisation (WHO), Tamuno, Omole-Ohonsi and Fadare (2010) state that about 80% of people living in Africa use herbal drugs for the management of their prevailing diseases.

This high use of herbal drugs may be due to accessibility, affordability, availability and acceptability of traditional herbal medicines by majority of the population in developing countries. Majority of herbal drugs used in Africa are provided by practitioners who live within the communities, have been trusted over time and are often willing to assist the patients with their knowledge and skills, sometimes at minimal costs to the patients (Tamuno (2011) and Fakeye, Adisa and Musa (2009)).

In Nigeria, the production and distribution of herbal drug is regulated by National Agency for Food and Drug Administration and Control (NAFDAC) to ensure strict compliance with approved herbal guidelines. For instance, NAFDAC, in the exercise of the powers conferred on it by Section 8 of the Drugs and Related Products (Registration), prohibits the manufacture, importation, advertising and sale of herbal medicine and related products in Nigeria without due registration with the agency in accordance with the provisions of the Section. Irrespective of NAFDAC regulations, there is nevertheless high proliferation of herbal drugs in the market peddled by practitioners without registration. The practitioners are found in both rural and urban areas espousing the healing virtues of their preparations as well as offering services varying from the sales of herbal to spiritual healing products. The crux of investigation was to determine whether availability of health information influences herbal drug use vis-à-vis users' belief in Southeast Nigeria. This is justified by the works of Shehu and Sheshi (2007) that posit that a worrisome challenge about herbal drug use is the perception of fetish beliefs as the main healing component of healing power of herbal drugs.

1.1 Background to the Study

Over centuries, the development and mass production of chemically synthesized drugs have revolutionised healthcare in most parts of the world. However, the apparent problems associated with these synthesised drugs in forms of adulteration and potency have resulted in people using herbs as alternative medicine today. The common reasons for using medicinal herbs (otherwise known as herbal medicine, traditional or alternative medicine) are that herbs are affordable, more easily correspond to the patient's ideology,

allays concerns about the adverse effects of chemical medicines, satisfies a desire for more personalised healthcare and allows greater public access to health information (Canter and Ernst, 2004).

World Health Organization (2004) defines herb to include crude plant materials, such as leaves, flowers, fruits, seeds, stems, wood, bark, roots, rhizomes or other plant parts, which may be entire, fragmented or powdered. According to WHO (2004), herbal drugs (medicine) include herbs, herbal materials, herbal preparations and finished products. In some countries, herbal medicines may contain, by tradition, natural organic or inorganic active ingredients that are not of plant origin (e.g. animal and mineral materials). For practical purposes, World Health Organisation (2004) classified herbal drugs (medicine) into four categories, based on their origin, evolution and the forms of current usage. While these are not always mutually exclusive, these categories have sufficient distinguishing features for a constructive examination of the ways in which safety and efficacy can be determined and improved. These are:

- Category 1: Indigenous Herbal Drugs (Medicine): This category of herbal medicines is historically used in a local community and is well known through long usage by the local population in terms of its composition, treatment and dosage. Detailed information on this category of herbal medicine, which also includes folk medicines, may or may not be available. It can be used freely by the local community or in the local region. Common herbal mixtures under this category include *7-Keys Power Mixture* or the popular *Ogbogboriche* mixture. However, for medicines in this category to enter the market or go beyond the local community or region in the country, they have to meet the requirements of safety and efficacy laid down in the national regulations for herbal medicines.
- Category 2: Herbal Drugs (Medicines) in Systems: Medicines in this category have been used for a long time and are documented with their special theories and concepts and accepted by the countries.

- Category 3: Modified Herbal Drugs (Medicines): These are herbal medicines that are popular and have been in the market for a long time, except that they have been modified in some way either shape, or form including dose, dosage form, mode of administration, herbal medicinal ingredients, methods of preparation and medical indications. They have to meet the national regulatory requirements of safety and efficacy of herbal medicines.
- Category 4: Imported Products with Herbal Drugs (Medicine) Base: This category covers all imported herbal medicines including raw materials and products. Imported herbal medicines must be registered and marketed in the countries of origin. The safety and efficacy data have to be submitted to the national authority of the importing country and need to meet the requirements of safety and efficacy of regulation of herbal medicines in the recipient country.

Regardless of the importance of herbal drugs as an alternative to modern medicine, herb use has been criticised based on certain factors that inhibit its usefulness. There is health question on the side effects of herbal medicine that range from unregulated preparation procedure, composition and dosage problems. Talalay (2001) and Elvin-Lewis (2001) agree that a number of herbs are thought to be likely to cause adverse effects. Adulteration, inappropriate formulation, or lack of understanding of plant and drug interactions have led to adverse reactions that are sometimes life threatening or lethal. Drug interactions are serious side effects of herbal medicine. Many commonly used medications interact with herbs and sometimes, herbs may amplify the effects of the medication leading to complications or death. Kraft and Hobbs (2004,p.17) state that ‘herbal drugs are often not potent enough to treat severe illnesses by themselves, except sometimes with a long-time course. Diseases may be drawn out unnecessarily when self-prescribed herbal drugs are taken improperly. It is virtually impossible to compare the efficacy of herbal remedies prepared by different manufacturers, even when they are derived from the same plant species, because different companies use different drying,

processing and manufacturing processes, and because plants from different populations vary in its constituent levels.’

Unlike the conventional drugs, herbal products are not regulated for purity and potency. Pelletier (2009) states that the herb industry is essentially unregulated. This lack of regulation and organized practice leaves consumers essentially on their own in determining how to use herbal products. The side effects of herbal drugs depend greatly upon the herbal remedy, the dosage and any pharmaceutical modifications taken by the patient.

Apart from the issues earlier discussed, the study on herb use cannot be adequate without a look at the role of health information and users’ health beliefs in the use of herbs vis-à-vis the inherent side effects associated with herb use. Information forms the fulcrum that provides the platform for information dissemination on health-related matters to the target audience. Hoffmann (2007,p.153) simply sees ‘information as messages used as the basis for decision-making.’ Okunna and Omenugha (2012) define information from the cognitive perspective meaning ‘to give knowledge’. This definition encompasses the totality of procedures and techniques of disseminating information. It is not only the news content of the mass media that informs; even mass media entertainment can be highly informative.

The media of health information include the broadcast media, print media, billboard advertising, mobile advertising, personal selling or face-to-face (interpersonal) interaction. The audiovisual quality of television makes it a veritable medium of dissemination of information on herb use. This is because television medium has the advantage of audiovisual quality and ability of easy manipulation in terms of indigenous language. The mass media have always provided the channels for the dissemination of information on herbal medicine in form of trade fairs, sales promotion or news reportage on herbs and related matters. For instance Anambra Broadcasting Service (ABS) television has always championed the cause of promoting herbal medicine through

periodic Herbal Trade Fairs to orientate people on the uses of herbs in curing ailments and as appendage to orthodox medicine.

On the other hand, health beliefs refer to psychological health behaviour that explains our understanding of health issues by focusing on the attitudes and beliefs of individuals. It is a perception of a person's health behaviour (Adum, 2011). In the use of herbs, users have attributed its efficacy to different beliefs. Some believe that the potency of herbs is derived from its spiritual significance or *shamanism*. In this case, the practitioner is regarded as endowed with gifts or powers that allow him to use herbs in a way that is hidden from the average person and the herbs are said to affect the spirit or soul of the person (Eisenberg and Wright, 1995; Sushma, 2012). For instance, Olagunju (2012) explains that the herbalist also believes that most of the plants and animals today were once humans. Their original names and the circumstances of their current situations are embedded in *Ifa* or *Agwu* verses. But only members of the *Ifa* or *Agwu* fraternity can know and understand them. When somebody who knows the names call them, the plants and animals become very 'happy' and their therapeutic effectiveness is heightened.

Another perspective of health belief in herb use anchors its potency on the use of natural products (herbs) as against the synthetic drugs that have passed through different stages of chemical processing. Fabricant and Farnsworth (2001) state that among 120 active compounds currently isolated from the higher plants and widely used in modern medicine today, 80% show a positive correlation between their modern therapeutic use and the traditional use of plants from which they are derived. This means that this belief system is based on naturalistic composition of herbs against the modern synthesized drugs. Users tend to believe that their preference of herbs to chemical drug is because herbs are products of natural plants and should be taken in their natural forms. The Southeast Nigeria comprised the Igbo-speaking States of Abia, Anambra, Ebonyi, Enugu and Imo. The area is characterized by dense population, massive infrastructural development, industrialization and use of herbal drugs in the cure of ailments.

1.2 Statement of Problem

Regardless of studies in herb use as alternative medicine, its efficacy and integration into the mainstream of medical practice is still inhibited by certain factors such as lack of adequate information on effective use of medicinal herbs in relation to side effects associated with its usage. Lack of adequate information has led to the predominance of unverifiable claims, unsubstantiated efficacy claims and misconceptions on the preparation, prescription and dosage administration of medicinal herbs. In cases where information is available, such information may lack authenticity due to such factors as individualistic approach to preparation of herbal drugs or inaccessibility of information. Information on herb use may also be distorted or disseminated through a wrong channel thereby alienating potential users from access to health information. The result is denial of vital health information which may further breed ignorance on the adverse effects of some medicinal herbs.

Another problem in the use of herbal drugs emanates from different beliefs associated with herb uses. People use herbal drugs for different reasons; while some users attach spiritual beliefs to the use of herbs; others may simply use herbs based on personal preference or naturalness of herbal products. Whatever is the case, available health information and user health beliefs could affect peoples' disposition to the use of medicinal herbs. In line with the stated problems, the study investigated the extent of herbal drug use in Southeast Nigeria and whether there is a correlation between herbal drug users' beliefs and efficacy of herbal drugs.

1.3 Purpose of the Study

This study sought to determine health information available to users of herbal drugs and how users' health beliefs influence their disposition to utilizing herbal drugs. In the light of the above, the following specific objectives were explored:

1. To determine the extent of herbal drug use in Southeast Nigeria.
2. To ascertain herb users' exposure to health information on herbal drug use.
3. To ascertain herb users' health beliefs about herbal drug use.

4. To determine the correlation between available health information and users' health beliefs in influencing herbal drug use in Southeast Nigeria.

1.4 Research Questions

The following research questions guided the study:

1. What is the extent of herbal drugs use in Southeast Nigeria?
2. To what extent are users of herbal drug exposed to health information on herbal drugs?
3. How do health beliefs influence users' attitude to herbal drugs?
4. What is the correlation between available health information and users' health beliefs in influencing herbal drugs use in Southeast Nigeria?

1.5 Scope of Study

A lot of areas could be explored in regard to health information and herbal drug use. This study was limited to measuring the influence of health information and health beliefs in relation to herbal drug use in Southeast Nigeria.

The respondents were selected from users of herbal drugs in Southeast Nigeria comprising five States namely: Abia, Anambra, Ebonyi, Enugu and Imo. This representation reflected the total elements for the study. The choice of Southeast Nigeria was made because the Igbo-speaking people are notable in the use of herbal medicine even before the advent of colonialism.

1.6 Significance of Study

This is significant in many ways. It is evident that the use of herbal drugs has been greatly inhibited by misconceptions occasioned by misinformation or lack of health information for herbal drug users. Theoretically, the findings of this study cleared misconceptions about herbal drug use by identifying good aspects of herbal medicine and how health information can promote or inhibit the practice.

Practically, the findings of the study will also assist relevant government agencies in charge of herbal medicine including regulatory agencies such as National Agency for Food and Drug Administration and Control (NAFDAC) to devise means of integrating the findings of this study towards boosting and encouraging herbal drugs (medicine) as alternative medicine.

Finally, this study will add to the bulk of research literature already in existence in related field of study and will also validate existing theories in health communication. Replicating this study in other geopolitical zones of Nigeria will widen the horizon of current studies in herbal drug use and the role of mass media in the dissemination of information on medicinal herbs.

1.7 Definition of Terms

For the purpose of clarity, the key concepts were operationally defined:

- a. **Claims:** It refers to statements that something is true or a fact especially one which others may not accept or agree with. In this case, claims refer to all purported healing powers of herb that are not scientifically proved but accepted by herbal drug users in Southeast, Nigeria.
- b. **Drug:** It is a substance used as a medicine or used in a medicine. Here, drugs refer to only herbal drugs either in raw, processed forms or as food supplements.
- c. **Drug Interactions:** These are serious side effects and complications associated with use of herbal medicine. It includes all side effects experienced by herbal drug users in Southeast Nigeria.
- d. **Drug User:** It refers to people who take herbal medicine or purchase on behalf of other people. It includes all users of herbal drugs in forms of manufacture, sale or use in Southeast Nigeria.
- e. **Efficacy:** This is a state of producing the desired result. In the context of this study, it refers to positive results associated with the use of herb.

- f. **Health Beliefs:** It refers to users' attitude to efficacy of herbal drugs based on users' beliefs. It includes all forms of beliefs associated with the use of herbal either derived within or outside the herb itself. It equally involves all beliefs associated with manufacture and administration of herbal drugs.
- g. **Health Information:** It refers to all media and interpersonal messages on health-related matters such as study on herb use and health beliefs. It means all messages on herbal drugs by various forms to collect and disseminate information on herbal use in Southeast, Nigeria.
- h. **Herbs:** It refers to plants whose leaves or seeds are used to give flavour to food, to prepare a drug or serve as food supplement or immune booster. It includes all herbs (plant, animal or any other medicinal extract) are used in the treatment of chronic and acute health conditions and ailments. They are usually derived from nature.
- i. **Herbal Drug:** It is otherwise known as traditional medicine and includes knowledge, skills and use of drugs extracted from herbs used in the treatment of ailments. Herbal drug consists of plants, or mixtures of plant extracts, to treat illness and promote health. It equally involve all food supplements either in powder form, in liquid form or taken as herbs.
- j. **Herbal Drug Use:** This refers to the use of herbs for curing ailments or as food supplements. It equally involves the effective use of herb as supplement to orthodox medicine. It also includes all manners of herbal drug use as in manufacture, sale and use of herbal products.
- k. **Herbal Materials:** These are herbal materials such as herbs, resins and dry powders of herbs that are processed by various local procedures such as steaming, roasting and stir-baking with honey, alcoholic beverages or other materials.
- l. **Orthodox Medicine:** These are processed synthetic drugs that are scientifically prepared and administered. It means all synthetic drugs not within the context of definition of herbal drugs in this study.

- m. **Potency:** It is the ability to be effective. It applies to any herbal drug that is said to have ascertained effective by the user.
- n. **Side Effects:** Side effects refer to all complications associated with the use of herbal medicine. It includes such side effects associated with herbal drug use that may be adverse or even lead to death. Other side effects may include skin irritation, sleepiness, insomnia, drug interactions, liver inflammation or even death.
- o. **Unsubstantiated Efficacy:** Unsubstantiated efficacy refers to all unverified and untestable perceived good results of the use of herbs for healing or as food supplements. It includes all unverifiable processes of preparation and constituent of herbal mixtures in Southeast Nigeria.
- p. **User Disposition:** User disposition refers to the psychological state of the mind of herb users that determine the level of acceptance or rejection of the use of herbs for healing or food supplements.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter is a review of related literature on herbal drugs, health information, users' belief system and other related areas. The chapter is broadly divided into three parts: conceptual review which examined related literature in the area of study; empirical review which reviewed past empirical studies carried out by other researchers in related areas and finally, theoretical framework on which the study was anchored.

2.1 Conceptual Review

The conceptual review covered the review of related literature on herbal drugs, case of quality assurance/control and efficacy claims vis-à-vis health belief. The review equally covered areas of advertising and marketing of herbal drugs and related products. It equally explored areas of health information and veritable media of information on herbal drugs.

2.1.1 An Overview of Herbal Drugs

Herbal drug (medicine) is at the centre of current studies in medicine as its efficacy is often subjected to adverse criticisms however; its patronage continues to be in high demand. In this current discussion, different scholars have offered definitions based on different perspectives. Better Health Channel report (2011) cited in Onuekwe (2015,p.13) defines “herbal drug as the use of plants (herbs) to treat disease and enhance wellbeing. Herbal healing is a system of medical treatment in which various parts – leaves, barks, roots, seeds, fruit, latex and resin – of different plants are used in order to treat symptoms and promote good health.”

According to Alubo (1983), herbal drug involves stock or knowledge of medicinal properties of herbs and roots as treatment for common remedies and other diseases in the society, which had been handed down from generation to generation. From the above

assertion, it could be inferred that certain abilities to cure with herbs may be traced to natural healing power. This assertion by Alubo (1983) is further strengthened by the belief among the Igbo of Southeast Nigeria that knowledge of, and what herbs or roots to utilize for what conditions are learnt (transmitted) from elders, who have themselves acquired this knowledge from past generations. The major problem of the inherited healing ability of the use of herb points to the argument on unverifiable claims of healings and the inability to separate a cure from the use of herb or divination which often accompanies the healing exercise by rural dwellers.

The reports of the Center for the Study of Religion and Culture (2005) and World Health Organisation (1996) classify herbal drugs (medicine) as the alternative or non-conventional modes of treatment often involving the use of herbs in a non-orthodox manner as well as the process of consulting herbalists, mediums, priests, witch doctors, medicine men and various local deities when seeking a solution to diverse illnesses. It equally includes herbal medicine, bone setting, spiritual therapies, circumcision, maternity care, psychiatric care, massage therapy, aromatherapy, music therapy, homeopathy and a lot of others. In the same vein, its practitioner has been defined as a person who is recognised by the community in which he lives as competent to provide health care by using vegetable, animal and/or mineral substances and certain other methods based on the social, cultural and religious background as well as the knowledge, attitudes and beliefs that are prevalent in the community regarding physical, mental and social wellbeing and the causation of diseases and disability.

Africa is endowed with many medicinal plants capable of alleviating illness or serve as food supplements or may be used for medicinal purposes when taken accordingly and in correct dosage. Bob (2004) states that out of the approximated 6400 plant species used in tropic Africa, more than 4000 are used as medicinal plants used in the treatments of many diseases and illnesses, the uses and effects of which are of growing interest to Western societies. Not only are plants used and chosen for their healing abilities but they also often have symbolic and spiritual significance.

Just like the orthodox medicine, herbal drugs are aimed at healing or preventing diseases, for instance, herbal medication can be used to cure mental disorders or other illnesses. In this light, Sofowora (1982) agrees that both forms of medical approaches are good, however, explains that the basic concept of western medicine centres round the results of experiments and the disease is regarded as caused by physiological agents including microorganisms and noxious substances in food and environment. On the other hand, the same author further explains that herbal drug, however, considers man as an integral somatic and extra material entity and sometimes illness is associated with witchcraft, ancestral gods, evil spirits and effect of spiritual possession.

By whatever form, Ekor (2014) maintains that herbal drugs continue to grow and many more new products are introduced into the market, public health issues and concerns surrounding their safety are also increasingly recognized. He however, argues that although therapies involving these agents have shown promising potential with the efficacy of a good number of herbal products clearly established, many of them remain untested and their use are either poorly monitored or not even monitored at all. The consequence therefore is adverse side effects due to inadequate information on the nature, prescription and dosage administration.

According to Bandaranyake (2006), the increasing use of herbs is attributed to several factors such as (a) various claims on the efficacy or effectiveness of plant medicines, (b) preference of consumers for natural therapies and a greater interest in alternative medicines, (c) erroneous belief that herbal products are superior to manufactured products, (d) dissatisfaction with the results from orthodox pharmaceuticals and the belief that herbal medicines might be effective in the treatment of certain diseases where conventional therapies and medicines have proven to be ineffective or inadequate, (e) high cost and side effects of most modern drugs, (f) improvements in the quality, efficacy and safety of herbal medicines with the development of science and technology, (g) patients' belief that their physicians have not properly identified the problem hence the

feeling that herbal remedies are another option, and (h) a movement toward self-medication.

On the other hand, Shehu and Sheshi (2007) identify the following factors that influence the preference of herbal drugs (medicine) to orthodox medicine: (a) time delay associated with conventional hospitals where patients queue endlessly waiting for doctors to attend to them. As alternative, people resort to the herbal medicine which requires little or no procedures, (b) the cost of herbal medicine is often cheap compared with hospital bills of conventional hospitals. The cost of treatment, to a large extent, determines the choice of herbal medicine to the orthodox medicine, (c) political force is another consideration as the political policies can affect healthcare delivery forcing people to resort to herbal treatment, (d) available health information equally accounts for the preference of herbal medicine to orthodox medicine as people tend to believe interpersonal communication more than the mass media messages as significant number of rural dwellers do not have access to mass media such as television, radio, newspaper, magazine or even the Internet, and (e) the proliferation of adulterated drugs peculiar to orthodox medicines. As alternative, people tend to believe that herbal medicines are products of nature, derived from nature thus more efficacious than orthodox medicine.

Collaborating with above, Kraft and Hobbs (2004) assert that herbal drugs provide a high level of treatment safety. When given a choice, patients tend to accept them more readily than synthetic drugs thereby increasing compliance. It equally facilitates the transition from acute short-term to chronic long-term treatment and can replace some of the conventional synthetic drugs used to treat patients with chronic diseases such as chronic fatigue syndrome and multiple morbidity syndromes. This is important because their synthetic counterparts often have considerable side effects.

At this juncture, it is important to state that not all plants are herbs. While some plants are toxic and poisonous, others provide nutritional nourishment or medicinal cure. Among the Igbo of Southeastern Nigeria, some plants, leaves, fruits, seeds, stems, wood,

bark, roots, rhizomes or other plant parts are used in the cure of different diseases, however the preparation, dosage administration and tested efficacy remain subject of clinical authenticity. As common to herbal drug (medicine) in the West, the determination of efficacy claims remains personal and sometime mystified. There is also the case of one plant (herb) curing a million diseases which may not apply in the use of orthodox medicine.

2.1.2 Origin of Use of Herbs for Medicinal Purposes: A Nigerian Perspective

Historically, the origin of use of herbs for medicinal purposes can be traced to the period when man started to explore the opportunity of utilising natural plants and plant extracts to serve as food and medicine. However, according to the studies of Schulz, Hansel and Tyler (2001); Li, (2000); Saito (2000); Morgan (2002) and Tyler (2000), the desire to capture the wisdom of traditional healing systems has led to a resurgence of interest in herbal medicines. In China, the traditional Chinese medicine has been used by Chinese people from ancient times. Although animal and mineral materials have been used, the primary source of remedies is botanical. According to Li (2000), traditional Chinese medicine is still in use in China. More than half the population regularly uses traditional remedies, with the highest prevalence of use in rural areas. About 5000 traditional remedies are available in China; they account for approximately one fifth of the entire Chinese pharmaceutical market.

The Japanese and Indian traditional medicine is equally global. Saito (2000) explains that many herbal remedies found their way from China into the Japanese systems of traditional healing. Herbs native to Japan were classified in the first pharmacopoeia of Japanese traditional medicine in the ninth century. On the other hand, Morgan (2002) notes that *Ayurveda* is a medical system primarily practiced in India that has been known for nearly 5000 years. It includes diet and herbal remedies, while emphasising the body, mind and spirit in diseases prevention and treatment.

In Europe, USA and other developed countries, the desire to capture the wisdom of traditional healing has led to a resurgence of interest in herbal medicines. Tyler (2000) notes that during the latter part of the twentieth century, increasing interest in self-care resulted in an enormous growth in popularity of traditional healing modalities, including the use of herbal remedies; this has been particularly true in the USA. Tyler (2000, p.44) observes that, 'consumers have reported positive attitudes towards herbal products, in large part because they believe them to be of 'natural' rather than 'synthetic' origin. They believe that such products are more likely to be safe than are drugs. They are considered part of a healthy lifestyle, and they can help to avoid unnecessary contact with conventional 'western' medicine. Use of herbal medicine in developed countries expanded in mid-twentieth century with series of documents such as WHO monograph on guidelines on herbal products and other detailed documentations on herbal medicine.

The development of African herbal medicine dates to colonial era. Before the advent of colonialism, Africans were deep rooted in the practice of herbal medicine. Helwig (2005) and Abdullahi (2011) note that traditional African medicine is a holistic discipline involving indigenous herbalism and African spirituality, typically involving diviners, midwives and herbalists. Practitioners of traditional African medicine claim to be able to cure various and diverse conditions such as cancers, psychiatric disorders, high blood pressure, cholera, most venereal diseases, epilepsy, asthma, eczema, fever, anxiety and healing of wounds and burns. The development of herbal medicine suffered greatly during the colonial era in different parts of African countries. For instance, under colonial rule, traditional diviner-healers were outlawed because they were considered by many nations to be practitioners of witchcraft and declared illegal by the colonial authorities, creating a war against witchcraft and magic. During this time, attempts were also made to control the sale of herbal medicines (Helwig, 2005). Modern development of herbal medicine in Africa witnessed the introduction of better refined and regulated herbal products and food supplements. In this regards, the treatments and remedies used in traditional African medicine have gained more appreciation from researchers in Western science (Conserve Africa Foundation, 2002).

In Nigeria, the development of herbal medicine dates back to pre-colonial era. Nigerians were practicing herbal medicine before colonialism. The country boasts of rich tradition of herbal drugs and eminent traditional healers involved in the preparation and administration of herbal drugs to clients. Ekeanyanwu (2011, pp 92-3) states that:

In Nigeria, traditional medicine practices are a main source of livelihood for a significant number of population who depend on it as their main source of income. As the population increases, demand for traditional medicines will increase. In order to provide affordable healthcare services especially to those who cannot afford orthodox medicine, several state governments through their traditional medicine boards have tried to institutionalize the use of traditional medicines. They do this through tradomedicine fairs and exhibitions which seek to enlighten the public on the possible cures from this kind of traditional medicine. Nigeria has established national and state traditional medicine boards for the regulation of herbal medicines practice and to promote cooperation and research. The Federal Government has also set up and financed the Federal College of Complementary and Alternative Medicine, Lagos under the Federal Ministry of Health to train herbalists on its use and practices. Herbalists are also being encouraged to register their proven and efficacious standardized herbal preparations with the National Agency for Food and Drug Administration and Control (NAFDAC).

Agreeing with above assertion, Engebretson (2002) argues that regardless of why an individual uses herbal drugs, traditional medicine provides an important healthcare service whether people have physical or financial access to allopathic medicine and it is a flourishing global commercial enterprise.

Among the Hausas of Nigeria, Nnadi and Kabat (1984); Mussein (1981); Waldram (2000) and Etkin (1988) capture the pre-colonial history of herbal medicine among the Hausa of Nigeria viz:

The *bokaye* and the *yan bori* are the most commonly known practitioners in Hausa society before the arrival of Islamic culture. The *bokaye* was an herbologist and subsisted on collecting and selling medical herbs and advice. It was common for the *bokaye* to be a farmer of his own medicinal herbs. The practices and philosophies of the *bokaye* open a proverbial window into the Hausa past before the influence of Islam became the norm amongst the African tribe. The *bokaye* was not a spiritual healer; medicine relied on herbs and was only used for minor ailments such as headaches or upset stomachs. Spiritual healing was carried out by a *yan bori* or a *dan bornu*, a practice which did not continue after Islam took

root in Hausa society. The herbs that the *bokaye* used, and likely still use, are kept secret from the buyer. To this day it is difficult to determine just how well the herbs work as a healing agent due to the *bokaye* not revealing the ingredients of their medicines. The secrecy of the *bokaye* creates an inability to determine the effectiveness of Hausa traditional medicine. The herbology used by the *bokaye*, however, was very well developed for its time, as the healer would have known exactly how to use specific parts of a plant, its seasons and harvesting conditions, and where it grew in the wild as well as how to farm it. They even knew how to detoxify certain plants by controlling their pollination, or by cross-pollinating them with less potent plants in order to attain a more usable medicine.

Nnadi and Kabat (1984) state that in modern society, traditional medicine is still widely popular amongst the Hausa people, with 55.8% reporting that they use both modern Western medicine and more traditional herbology and Islamic faith healing.

Among the Yoruba of Nigeria, herbal drug (medicine) forms the epicenter of their health system. It is argued that among major tribes in Nigeria, the Yoruba ranks first in the use of medicinal herbs. Specialists in Yoruba traditional medicine include herbalists, bone setters, traditional psychiatrists, traditional paediatricians, spiritual therapists, local surgeons, traditional birth attendants (TBA), occult practitioners, herb sellers and general practitioners among others. Temitope, Borokini, and Lawal (2014) and Abogunrin (2004) note that:

Traditional medicine in Yoruba land is anchored on beliefs in certain phenomena called superstitions. These sets of beliefs create fear or faith in the people. There are probably thousands of such beliefs in Yoruba land. The relevant beliefs with respect to Traditional medicine include: (1) the general belief in Yoruba land is that all sicknesses are caused by evil supernatural forces. (2) Yoruba also believe that the heavenly bodies like wind, stars, sun and moon are capable of influencing directly or indirectly the health and prosperity of every human being, (3) Yoruba people and indeed the African worldview believe in the numinous, existence of divinities, demons and ancestral spirits. They also believe that every tree and herb have spirits that live in them. These spirits empower these herbs for medicinal purposes. It is the belief of the herbalist that every plant or animal had its esoteric or original name at the time of creation by Supreme God and (4) Yoruba people believe in reincarnation, and that an offence committed in past existence can cause disease after reincarnation.

The Igbo in the Southeast Nigeria occupies an agrarian land that supports agriculture and herbal products. Nwoko (2009) notes that the Igbo traditional health care system has enjoyed patronage from local people who believe in it and consider it as a more affordable and effective alternative to western medicine on one hand and the elite who are skeptical but resort to it, though secretly, when western medicine offers a dim hope for their physical and spiritual well-being. Among Igbo people of Southeast Nigeria, the traditional healer is called *Dibia* who understands the composition and administration of herbal drugs to users. While healers are qualified by the form and nature of ailments they treat, a healer's fame usually rests on his level of training and form of expertise. A single healer can combine more than one area of expertise, often times the spiritual and the physical (Nwoko, 2009).

Collaborating with above, Iroegbu (2011) observes that ritual is extremely a part of their everyday life experiences for adaptation and survival and this is reflected in Igbo unique religious ritual symbols of autochthony and worship. Prominent symbols as *ofo* and *ogu* are commonly used by both experts and ordinary people. Medicine is an important field for their survival and the *dibia* holds significant roles and positions. A significant aspect of a *dibia* is the ability to fashion and use healing symbols – applied to sites and domains linked to illnesses, social, economic and political challenges. Illnesses emerge time and again due to diverse issues arising from environmental, food, kinship and bodily conflicts. A *dibia* is particularly sought after to offer release from suffering in addition to those who seek faith and opportunity for a better life, position and power.

Okonkwo (2015) and Shu (1997) state that Igbo people have devised way for curing diseases that are environmentally induced as they tried to dominate and conquer the environment in which they lived. Unfortunately, this cultural practice has been widely criticised especially by Eurocentric scholars. This is principally based on the assumption that traditional healers rely almost exclusively on magic, witchcraft and necromancy. Anazado (2008) identifies five categories of Igbo traditional medicine practitioners:

Herbalists, bone setters, traditional psychiatrists, diviners, and traditional birth attendants. Traditional healthcare practitioners inherit this practice from their forefathers and that patients consult on a daily basis. For the herbalist, the spirit of 'Agwu' assist him either by day – by leading him into the bush and revealing medicinal herbs to the person; or by night in ones dream. Anyone who ignores the call of 'Agwu' to join in the profession is continuously disturbed by the spirit of 'Agwu' until he becomes a herbalist. The diviners on the other hand uncover the cause of a misfortune on a person through divination to find out the cause of the ailment. Occasionally, sacrifices are offered to the gods or through 'dibia-aja' in order to appease them. The bone setters as those traditional practitioners who specialize in mending broken bones (broken legs and hands), severe pains in the spinal cord, waist etc. They make use of herbs, roots, sand, alligator pepper, local ointments, animal product etc. for treatment of fractures. The traditional psychiatrist (*dibia ara*) specializes in curing mental illness caused by evil spirits or invoked by people on their enemies.

Regardless of why an individual uses medicinal herbs, Engebretson (2002,p.8) agrees that 'alternative medicine provides an important healthcare service whether people have physical or financial access to allopathic medicines.' In this case, the major use of herbal medicine is for health promotion and therapy for chronic, as opposed to life-threatening conditions. Pelletier (2009) argues that modern pharmaceuticals cannot treat every condition effectively and some (chemical) drugs have unwanted side effects. In the late 20th century, herbal drug (medicine) made a comeback as people began to seek alternatives to these synthetic drugs.

The use of herbs for the cure and prevention of diseases span through ages, however its usage is somewhat tied to cultural background of the users thus determining their health belief systems. Among the Igbo, there are different herbal approaches to healing with the aid of herbs as in the case of mending broken bones by traditional bonesetters, treating mental disorders through the use of herbs, facilitating easy childbirth by local midwives and even diviners. The approach to herbal healing may range from the use of medicinal herbs to introducing certain spiritual incantations to make the herb efficacious.

Today, more herbal preparations are marketed globally with leading herbal industries such as Chinese herbal medicine always in high demand used for therapeutic purposes and as food supplements. In the developing countries of Africa especially Nigeria, the

use of medicinal herbs in the cure of different ailments and as food supplements is relatively in high demand. Herb use is often tied to the type of cultural belief as well as religious beliefs of a society. The World Health Organization (WHO) estimates that 80 percent of the population of some Asia and African countries presently use herbal medicine for some aspect of primary healthcare. Many of the pharmaceuticals currently available have a long history of use of herbal remedies including *opium*, *aspirin*, *digitalis* and *quinine* derived from plants (DaSilva, Baydoun and Badran, 2002).

2.1.3 Herbal Supplements: An Overview

Mayo (2017) defines herbal supplements, sometimes called botanicals, as one type of dietary supplement available for purchase. Herbal supplements aren't new — plants have been used for medicinal purposes for thousands of years. He further argues that these products can pose unexpected risks because many supplements contain active ingredients that have strong effects in the body. For example, taking a combination of herbal supplements or using supplements together with prescribed medications could lead to harmful, even life-threatening results. One important aspect of herbal supplement is food supplement. WedMD (2005) defines it as substances you eat or drink. They can be vitamins, minerals, herbs or other plants, amino acids (the individual building blocks of protein), or parts of these substances. They can be in pill, capsule, tablet, or liquid form. They supplement (add to) the diet and should not be considered a substitute for food.

According to EU Regulations (2017), food supplements are foodstuffs the purpose of which is to supplement the normal diet and which are concentrated sources of nutrients or other substances with a nutritional or physiological function, alone or in combination, marketed in dose form, namely forms such as capsules, pastilles, tablets, pills and other similar forms, sachets of powder, ampoules of liquids, drop dispensing bottles, and other similar forms of liquids and powders designed to be taken in measured small unit quantities. The use of food supplements is becoming significant in medical practice thus EU Regulations sets out the following stipulates labeling requirements for foodstuffs to include that proper labeling of supplements for accurate identification and that there

should be dosage of product recommended for daily consumption with indication of likely health risks. The regulation warns against fictitious health claims.

2.1.4 Benefits of Herbal Drugs

Herbal drug (medicine) is perceived to be effective in the treatment of certain diseases irrespective of its efficacy questions. Its benefits could be positive as well as negative. Era (2002) observes that herbal drugs have good values in treating many diseases including infectious diseases, hypertension, etc. The ability of herbs to save lives of many, particularly in the developing countries, is indisputable however, the major challenges of any pharmaceutical scientist are serious problems associated with the overall quality, safety and efficacy of herbal products. Preservation and dosage measurement are serious problems in developing countries. Kraft and Hobbs (2004) point out that although recent reports highlight a few problems with herb-drug interactions, the overall chance of most herbal preparations interfering with the safety and efficacy of synthetic drugs is small, on the basis of actual human reports.

Positive Benefits of Herbal Drugs

- a. Herbal drug is relatively cheap in terms of extraction, preparation and administration than the modern medicine. It does not require much technology like modern medicine thus reduces the delay associated with modern medicine.
- b. Herbal drugs have good values in treating many diseases including infectious diseases, hypertension etc.
- c. It is easily accessible as it is mostly obtained from nature and natural endowments. This further strengthens the belief of users on its potency contrary to orthodox medicine which people often see as being largely synthetic and easily adulterated.
- d. The generational inheritance of the ability to use herbs to cure often solidifies users' belief that such herbal drugs are authentic, effective and often spiritually endowed.

In a study on ‘*Traditional Medicine Practices among the Yoruba People of Nigeria: A Historical Perspective*’, Temitope and Lawal (2014) identified the following advantages of herbal drugs (medicines):

- a. Little or no pathogenic resistance to traditional formulations: Due to the fact that many herbal recipes are usually polyherbal formulations, it is very difficult for any parasite or pathogen to develop resistance to it. Expensive drugs: Generally, herbal medicine is relatively cheap while the cost of orthodox medicine is increased by modern health technology.
- b. For illnesses with no pharmaceutical remedy, herbal Medicine has treatments for it using herbal formulations.
- c. Accessibility: Traditional medicine is more accessible to most of the populations in the developing nations where there is shortage or inadequate hospitals and medical personnel.
- d. Acceptability: Traditional medicine enjoys wider acceptability among the people of developing countries than does orthodox medicine because herbal drugs are readily into the socio-cultural life of the people in whose culture it is deeply rooted.
- e. Inadequate medical personnel: In order to consult an orthodox doctor, the patient often has to undergo the complicated and time-consuming processes however, it does not take such a rigorous process to meet a herbal medical personnel.
- f. Fake and adulterated drugs: It is a readily alternative to high and rising proportion of fake and adulterated synthetic drugs.

Negative Benefits of Herbal Drugs

The studies of Oreagba, Oshikoya and Amachree (2011); Kloucek, Polesny, Svobodova, Vlkova and Kokoska, (2005); Nnorom, Osibanjo and Eleke, (2005) agree that despite the widespread of the use of herbal medicines globally, they are not completely harmless. The indiscriminate, irresponsible and non-regulated use of several herbal drugs may put the health of their users at risk of toxicity while the study of Oshikoya, Njokanma, Chukwura and Ojo (2007) observe that excess use of herbal drug may cause some

adverse effects which may be severe or life-threatening such as severe acute renal failure and hepatic failure due to the use of herbal drugs. Oreagba, Oshikoya and Amachree (2011) state that despite the belief of many users of herbal drugs that herbal drugs rarely produce adverse effects, the study argue that considering the magnitude of popularity of herbal drugs, it is necessary to evaluate the safety, efficacy and quality of these preparations and products which may involve clinical trial studies. On the other hand, the studies of WHO (2001) and Ekeanyanwu (2011) indicate that the biggest problems with herbal drugs are lack of standardization and of safety regulations. Standardization of herbal drug that may contain hundreds of chemical constituents with little or no evidence indicating which might be responsible for the presumed or proven therapeutic effect is a particularly theory issue.

Major criticism of herbal drug is the issue of poor hygiene associated with its extraction, preparation and administration which may result to adverse side effects. Other criticisms may include:

- Herbal drugs lack scientific proof and procedure as individual practitioner prepares his drug according to his instinct.
- There is a problem of unregulated dosage administration which may lead to adverse side effects. Prevention and dosage measurement are serious problems in developing countries. There may be cases of contamination and other poisonous toxins that are harmful to the body which may lead to death.
- The preparation is often accompanied with obnoxious superstitious practices and its administration may require some fetish rubrics.

2.1.5 Herbal Drugs: Challenges

The use of herbal drugs has its challenges, for instance, the label and efficacy claims and other information provided for the use of herbal preparation may be far from what is in the 'bottle'. There are equally cases of sharp practices such as the addition of orthodox medicines to herbal preparations by some traditional medical practitioners. Era (2002,p.2) explains that different orthodox medicines may be added to a herbal

preparation with the hope that one of the added drugs may cure the user's ailment. He further states that 'just because an herb is natural does not mean that it is safe and claims of remarkable healing powers are often not supported by reliable evidence.' The above observation clearly explains that although herbs can bring about cure, its clinical constituents must be truly ascertained.

Apart from the case of arbitral addition of chemical substances into herbal preparation to boost its potency, Era (2002) further identifies other factors that pose serious challenges to herbal medicine viz: cultural practices, religious beliefs, past experiences, traditional beliefs and behaviours, influence of friends and relatives, economic consideration and poor health. The recognition of supernatural causes of illness is at variance with western medicine but has a great influence in the subscription to herbal medicine practice.

World Health Organization (2004) identifies the challenges in monitoring the safety of herbal medicine in terms of regulation, quality assurance and control. To this regard, the world health body points out that almost all new medicines are introduced to the market as prescription medicines, a significant volume of post-marketing safety data from spontaneous reporting will have been realized over time. Surprisingly, some of these medicines will subsequently be reclassified as non-prescription medicines and will become major sources of self-medication.

2.1.6 The Case of Quality Assurance and Control

On quality assurance and control, the World Health Organisation (2004) argues that weak regulation and quality control may result in a high incidence of adverse reactions attributable to poor quality of herbal drugs (medicines), in particular resulting from adulteration with undeclared potent substances and/or contamination with potentially hazardous substances and residues. At this juncture, it is important to note that there is often a misconception that 'natural' means 'safe' and many consumers believe that remedies of natural origin carry no risk. Patients who use herbal medicines and other

medicines together, as is often the case, will often not mention the use of such herbal medicines to their physician.

In addition, Rodrigues and Barnes (2013) point out that in recent years, issues relating to increasing use of herbal products in developed countries, dependence of many people living in developing countries on plants as a major source of medicine coupled with absence of weak regulation of herbal medicines in most countries and the occurrence of high-profile safety concerns, have increased awareness of the need to monitor safety and deepen understanding of possible harmful as well as potential benefits associated with the use of herbal medicines. Adverse events arising from consumption of herbal medicines may be due to any one of a number of factors viz: (a) the use of wrong species of plant by mistake, (b) adulteration of herbal product with others, (c) undeclared medicines, (c) contamination with toxic or hazardous substances, (d) overdose, (e) misuse of herbal medicines concomitantly with other medicines etc.

It is obvious that the quality of the source materials used in the production of herbal drugs determines to a large extent the safety and efficacy of these herbal remedies. In this respect, Ekor (2014) and WHO (2005) agree that one of the major challenges often encountered in the quality control of finished herbal medicinal products especially mixture herbal products is the difficulty in ascertaining the inclusion of all the plants or starting materials.

Quality assurance of herbal drugs is the shared responsibility of manufacturers and regulatory agency in such as National Agency for Food and Drug Administration and Control (NAFDAC). It is the statutory duty of the regulatory agency to set guidelines on all elements of quality assurance of herbal products within the stipulations of the World Health Organisation. The established parameters must include evaluating dossiers and data submitted by the producers and check post-marking compliance of products with the specifications set out by the producers and marketers. To further ensure quality control. Government through NAFDAC issues certificates and registration numbers to approved

products and their producers but with constant supervision to ensure continuity in maintaining standards.

At the global level, World Health Organisation (2004) stipulates that all herbal-based medicinal products should meet the requirements for safety, efficacy and quality as per the categories of herbal medicines. To this end, all imported herbal medicinal products need to meet the requirements of safety, efficacy and quality control regulations of the importing countries. To control the quality of imported herbal medicine products, the following requirements should be taken into consideration: (a) licensing authority which authenticates that the herbal product is good and meets the requirements of the regulatory agency of the country. This includes a thorough examination of the constituents of the herbal products and its value in the country of import and (b) import licence which authorises the importation of such herbal products into another country. Gruewald (2008) maintains that for pharmaceutical purpose, the quality of medicinal plant materials must be as high as that of other medicinal preparations. However, it is impossible to assay for specific chemical entity, when the bioactive ingredient is not known. Further problem is posed by those preparations which contain heterogeneous mixtures. Directive on the analytical control of vegetable drug must take account of the fact that the material to be examined has complex and inconsistent composition. Therefore, the analytical limits cannot be as precise as possible for the pure chemical compound.

Ekor (2014); World Health Organisation (2004) and Zhou., Ouedraogo., Qu and Duez (2013) have common areas of agreement in the area of quality control of herbal product and the question of whether advertised herbal drugs actually contain the claims and constituents. The authors note that the quality of source materials used in the production of herbal drugs determines to a large extent the safety and efficacy of these herbal remedies. The quality of source materials is dependent not only on intrinsic (genetic) factors, but also on extrinsic factors like environmental conditions, good agricultural and good collection practices. On the other hand, World Health Organisation (2004) states that one of the major challenges often encountered in the quality control of finished

herbal medicinal products, especially mixture herbal products, is the difficulty in ascertaining the inclusion of all the plants or starting materials. To ensure safety and quality control, WHO recommends the institution of quality assurance and control measures such as a national quality specifications and standards of herbal materials. By this means, the regulatory agency will be able to define the categories of herbal products in a country.

There is often a wrong definition and classification of herbal drugs thus leading to abuse of medicinal herbs; for instance, a single medicinal plant may be defined as a food, a functional food, a dietary supplement or a herbal medicine in different countries. It is the duty of the regulatory agencies to define the nature and classifications of herbal products in a country. In Nigeria, for instance, the biggest problems with herbal drugs are lack of standardisation and of safety regulation. Standardisation of a herbal drug that contains hundreds of chemical constituents with little or no evidence indicating which might be responsible for the presumed or proven therapeutic effect is a thing of great concerns (Ekeanyanwu, 2011). In the same vein, Erah (2002) argues that absence of quality control of herbal drugs especially those herbs produced in remote villages with NAFDAC registration and approval often adopt sharp practices such as wrong mixture of herbal constituents, addition of orthodox medicines to herbal preparations and use of superlatives in marketing of herbal products. The author further states that ‘the major challenges of herbal drug are serious problems with the overall quality, safety and efficacy of herbal productions. Preservation and dosage measurement are serious problems in developing countries. The label claim and other information provided for the use of herbal preparation may be far from the real herbal content (Erah, 2002, p.53).’

2.1.7 Safety and Efficacy Claims in the Use of Herbal Drugs

To ensure safety and efficacy of herbal medicines, therefore, WHO continues to recommend the institution of quality assurance and control measures such as national quality specification and standards for herbal materials. Batta (2013) identifies the problem of standardization of dosages. Scientific studies and commercial manufacturing

of herb-based drugs have not captured the interest of our pharmacologists yet. Again, the production quality in terms of use of aseptic technique and the application of sterilizing agents have discouraged some from using herbal drugs.

There is the problem of efficacy claims associated with the use and intake of herbal drugs. To this effect, World Health Organization (2005) suggests that contrary to understanding of medical claims often attributed to herbal drugs (medicine), medical claim includes any statement, suggestion or implication in labeling or advertising that a product carries a specific health benefit, but not nutritional claims nor medicinal claims. The reason for ensuring safety is obvious; for preservation of human life. There is no gainsaying the fact that the requirements as well as the research protocols, standards and methods needed for the evaluation of the safety and efficacy of herbal medicines are much more complex than those required for conventional or orthodox pharmaceuticals (WHO (2005); Zhou., Ouedraogo., Qu and Duez (2013)). It is, therefore, imperative that herbal medicine cannot achieve the desired health value if it is not properly regulated to ensure safety and efficacy. The problems of efficacy and effectiveness have rarely been demonstrated using modern scientific investigations. For herbal products in common use, evidence of efficacy may be based upon traditional use, testimonials, clinical studies, both controlled and uncontrolled, and randomized double-blind, placebo-controlled trials. For the most part, however, there is a lack of systematic clinical studies to support claims. Safety of some herbal ingredients has been recently called into question, in part because of the identification of adverse events associated with their use and, increasingly, because of the demonstration of clinically relevant interactions between herbs and prescription drugs (Allison, Fontaine, Heshka, Mentore and Heymsfield (2002) and Food and Drug Administration (2002)).

The term health claim further includes claims that refer to nutrient function and recommendation dietary practice. To this end, Ekor (2014) observes that differences in classification of herbal across nations of the world accounts for the inability of concerned agencies to properly checkmate unregulated herbal drugs. The same author maintains that the definition and categorization of herbal drugs vary from one country to another.

Depending on the regulations applying to foods and medicines, a single medicinal plant may be categorized as a food, a functional food, a dietary supplement or herbal drugs in different countries. This poses a problem of proper classification of these medicines in order to determine their functions and efficacy claims. There is the problem of comparison of efficacy in which Kraft and Hobbs (2004) argue that it is virtually impossible to compare the efficacy of herbal remedies prepared by different manufacturers, even when they are derived from the same plant species. This is because different companies use different drying, processing and manufacturing processes and because plants from different populations vary in constituent levels. The therapeutic efficacy of herbal remedies with comparable concentrations of primary constituents but produced by different manufacturers may vary because of the differences in the content of minor constituents.

Collaborating with the WHO guidelines, National Agency for Food and Drug Administration (NAFDAC) in Herbal Medicines and Related Products (Labelling) Regulation 2005 specifies that no implied claims or suggestions of herbal medicines or related products may be made, if there is inadequate evidence of safety or lack of substantial evidence of effectiveness. Where a claim of effectiveness or therapeutic indication labeling is made by a herbal drug or related product, it shall carry boldly and in close proximity to the claim, a statement to the fact that such claim have not been evaluated by the Agency, unless such claim has been clinically proven and deemed satisfactory by the Agency.

Shehu and Sheshi (2007) state that the greatest weakness of herbal drugs (medicine) today is the lack of scientific proof of its efficacy. Their claims have not been thoroughly investigated scientifically. The system is equally characterized with imprecise diagnosis often given by the practitioners. A diagnosis of stomach trouble, for example, may mean indigestion, ulcer, constipation etc. Such impression is due to the fact that the pathology of certain diseases is not known to the herbal drug practitioner(s); as a result, they tend to treat symptoms rather than the diseases.

2.1.8 Associating Efficacy Claims of Herbal Drugs Vis-à-vis Health Beliefs

A more worrisome challenge about herbal medicine is the association of herbal drugs with spiritualism or superstitious belief on the efficacy of herbal products. To this end, Onwuanibe (1979) observes that some healers may employ the use of charms, incantations, and the casting of spells in their treatments. The dualistic nature of traditional African medicine between the body and soul, matter and spirit and their interactions with one another are also seen as a form of magic. 'Extra-Sensor-Projection' is a belief among the Igbo of Nigeria that medicine men can implant something into a person from a distance to inflict sickness on them. Often times, the herbal user consciously or unconsciously establishes efficacy belief not on the healing powers of the herb but on the magical incantations offered to the gods before prescription and administration of the herbal medicine. This perception is easily accepted because large percentage of herbal users believe equally that efficacy is divinely rooted in certain ancestral households in which case, members of the family inherit the healing powers at birth.

Shehu and Sheshi (2007) equally agree with Onwuanibe (1979) in the involvement of fetish ceremonies in the use of herbal drugs. They argue that witchcraft and the evil aspect of herbal medicine practice discredit this form of medicine. A medicine is supposed to promote good health and remove physical, mental or social imbalance, yet certain practice(s) of herbal medicine are designed to bring evil to other people through witchcraft. Apart from traditional beliefs associated with herbal medical practice, there is also the influence of Pentecostal influences by some religious sects that claim to treat diseases through laying of hands and spiritual healing.

In a traditional Igbo community, herbs are said to be more efficacious when certain incantations or liberations are performed to appease the gods believed to affect human behaviour and health conditions. Explaining the role of *dibia* who may serve as mouthpiece of the gods and herbal medicine personnel in a typical Igbo community, Iroegbu (2011) states that:

Agwu deity is associated with a cultural spin on medicine and divination skills of a *dibia*, a folk medicine practitioner. The word *agwu* is by itself derived from *agwa*, “manner or behaviour”. Specifically, *agwu* refers to the major deity or god-head of medicine (*chi ogwu*). Its symbol is a doll-like human being made of wood or covered with clay, also called *agwunsi*. *Agwu* is believed to be the ally of *dibia* determining their destiny and life skills. It is a god of care who directs human affairs while navigating the world. One's *chi* or tutelary god is often regarded as the same as one's *agwu*. Affliction of certain illnesses and healing are primarily associated with *agwu*. Consequently, *agwu* pertains to the domain of morality and continuity of tradition of caring skills. A family with a record of healing art is likely to continue this tradition due to *agwu* intervening to transfer the visionary power and healing skills. This is clairvoyance dimension needed to switch on. In the event of refusal, this deity is responsible for pattern of illness or misfortune called *ihe agwu* (deific disturbance) that may follow. Failure to heed the knock on the door to undertake healing responsibility is met with severe afflictions by the *agwu*. A *dibia* knows well what *agwu* can do.

Similarly, in a study of herbal use vis-à-vis beliefs among Yoruba of Southwest Nigeria, Temitope and Lawal (2014); Eliade (2007) and Abimbola (1972) point out that:

Most Yoruba indigenous medical experts appreciate the importance of offering prayers to the Supreme God. This is necessary for enhancing the therapeutic values of the prepared medicines. The Yoruba tribes believe that God gave healing power through his messenger, called *Ifà*. The Yoruba religion has a multitude of deities, the major of which are called *Orisha*. There are about 201 deities, thirty of which are commonly worshipped in Yoruba land. In diagnosing illness, each one of these Deities manifests interdependent physical qualities and herbal attributes, each affecting one another. The Deities stand for higher energies that govern living matter destinies, transcend sensory faculties, and intermediate contact with the Supreme God. These deities are believed to be responsible for giving them good health and meeting their demands for livelihood.

Musseini (1981,p.251) and Last (2011) capture the place of health beliefs on efficacy of herbal drugs among the Hausa of Northern Nigeria viz:

The *bokaye* was not a spiritual healer; medicine relied on herbs and was only used for minor ailments such as headaches or upset stomachs. Spiritual healing was carried out by a *yan bori* or a *dan bornu*, a practice which did not continue after Islam took root in Hausa society. The *yan bori*, which also survived into the Islamic societal shift, is another window into the Hausa past, but is a spiritual rather than an herbal healing practitioner. The *yan bori* were pagans, as were the Hausa. The spirits which the *yan bori*, as well as the Hausa people, worshipped before Islamic religion was adapted by Hausa society, were representative of

certain aspects of Hausa life. Examples of these spirits include Dogon Daji, the Tall One of the Forest; Sarkin Rafi, the Chief of the River, Kure the Hyena; and Gajjimore, the God of Rain and Storm. The *yan bori* would pray and perform rituals to spirits based on the patient's ailment. The *yan bori* believed in spiritual possession and though they had many named spirits to govern over the world, they also believed in nameless spirits which could possess a man and must be cleansed from his body.

Though the above authors have argued that there is a place of belief in the preparation, administration and use of herbal products among users especially in Nigeria, it is arguable that this form of spiritual healing may not provide concrete evidence that healing emanated from such prayers or by 'fake-healing' using black magic. To this end, Batta (2013, p.143) states that 'most importantly, the tendency to fuse herbal medicine with spiritistic practices such as sorcery, divination and witchcraft has for long given herbal medicine a bad name thus making it less appealing to some.'

2.1.9 Regulations of Herbal Drugs: Global Overview

One of the challenges of herbal drugs (medicine) in contemporary society is the issue of effective regulations of manufacture, processing and administration of herbal drugs. Unfortunately, most countries do not have regulatory policies that can effectively protect their citizens from the identified problems of herbal drugs. In the quest to provide a generally accepted framework for regulating the practice of herbal drugs (medicine), World Health Organisation (2004) advocates that:

- a. Quality assurance and control measures, such as national quality specification and standards for herbal materials, good manufacturing practices (GMP) for herbal medicines, labeling, and licensing schemes for manufacturing, imports and marketing, should be in place in every country where herbal medicines are regulated.
- b. Requirements and methods for quality control of finished herbal products, particularly for mixture herbal products, are far more complex than for other pharmaceuticals. The quality of such products is influenced by the quality of the raw materials used. Good agricultural and good collection practices (GACP) for

medicinal plants, including plant selection and cultivation, are therefore important measures.

- c. All providers of herbal drugs (medicine) should play a role in monitoring the safety of non-prescription herbal drugs. Nurses are becoming increasingly involved in this area and are making a valuable contribution to safety monitoring providers of herbal medicines to be effectively involved; it is essential to create an atmosphere of trust to enable the sharing of knowledge about the use and safety of herbal medicines.
- d. Health-care professionals and providers of herbal drugs should ask patients directly, respectfully and persistently what other medicines they are taking, including prescription medicines, herbal drugs and other health products for self-care.
- e. The education of health-care professionals, providers of herbal drugs and patients/consumers is vital for the prevention of potentially serious risks from misuse of herbal drugs.
- f. Active promotion within a country should take place only with respect to drugs legally available in the country and promotion should be in keeping with national health policies and in compliance with national regulations as well as with voluntary standards where they exist.
- g. All promotional-making claims concerning medicinal drugs should be reliable, accurate, truthful, informative, balanced, up-to-date, capable of substantiation and in good taste.
- h. Adequate information on the use of medicinal drugs should be made available to patients. Such information should be provided by physicians or pharmacists whenever possible. When package inserts or leaflets are required by governments, manufacturers or distributors should ensure that they reflect only the information that has been approved by the country's drug regulatory agency.

In line with the findings of the study by 131 Member States, the World Health Organization (2005) identifies the following regulatory status of herbal drugs:

- **Prescription Medicines:** Medicines/drugs that can only be purchased with a prescription (i.e physician's order).
- **Over-the-Counter Medicines:** Medicines/drugs that can be purchased without a prescription from a physician.
- **Self-Medication Only:** Medicines/drugs permitted for self-medication purposes only.
- **Dietary Supplements:** A dietary supplement is a substance which contains, for instance, a vitamin, a mineral, a herb or other botanical or an amino acid. A dietary supplement may be intended to increase the total daily intake of a concentrate, metabolite, constituent, extract or combination of these ingredients.
- **Health Food:** Health foods could be products that are presented with specific health claims and therefore regulated differently from other foods.
- **Functional Foods:** Like health foods, functional foods may be products which are offered with specific health claims and therefore regulated differently from other foods.
- **Others:** Products classified differently from the above-mentioned categories.

2.1.10 Regulating Herbal Drugs in Nigeria: The Case of National Agency for Food and Drug Administration and Control (NAFDAC)

In Nigeria, the issue of regulating both the practice of orthodox and herbal drug has provided the platform for ensuring the safety of Nigerian citizens in the hands of drug providers especially herbal drugs. To this respect, NAFDAC by Section 5 and 30 of the National Agency for Food and Drug Administration and Control Act Cap NI Laws of the Federation of Nigeria (LFN) 2004 enacted four regulations on the use of herbal drugs (medicine) viz:

- a. Guidelines For Registration/Listing of Herbal Medicines And Related Products 2000
- b. Herbal Medicines and Related Products (Registration) Regulations 2005
- c. Herbal Medicines and Related Products (Advertisement) Regulations 2005
- d. Herbal Medicines and Related Products (Labelling) Regulations 2005.

The above listed regulatory provisions can be summarised as follow:

- i. The regulation prohibits the manufacture, importation, advertisement, sale and distribution of unregistered herbal medicines and related products in Nigeria without approval by NAFDAC. The product must be duly approved and assigned a NAFDAC Registration Number after thorough clinical examination of the herbal product.
- ii. Herbal medicinal products shall be defined as finished and labelled medicinal products containing plant or their preparation presented with therapeutic or prophylactic claim and include all preparations containing a plant material in part or wholly.
- iii. On labeling, the regulation provides that all information on a label shall be clearly and prominently displayed thereon and readily discernible to the consumer; must be in English language though may include other languages. There should be no implied claims or suggestions of herbal drugs if there is inadequate evidence of safety or a lack of substantial evidence of effectiveness.
- iv. In cases where a claim of labeling is made by a herbal drug or related product, it shall carry boldly and in close proximity a statement that such claims have not been evaluated by NAFDAC. The label should be clearly printed on the package including the name and place of business of manufacturer and may include the distributor or packer. It should also include dosage form, net contents of product, direction of use, batch number, manufacturing date, expiry date, contra-indications/drug interactions, warning, and precautions for certain class of patients etc.

- v. In the case of imported products, the manufacturer/distributor must show evidence that the company is licensed to manufacture and that the sale of the product does not constitute a contravention of the Laws of that country.
- vi. In the case of advertising, the regulation prohibits advertisements of all sorts unless it has been registered by the Agency and the advertisement has been given pre-clearance and approval by the Agency. Advertisements of herbal drugs shall be accurate, complete, clear and designed to promote credibility and trust by the general public and healthcare practitioners etc.

2.1.11 Advertising and Marketing of Herbal Drugs

The recent boom in the purchase and use of herbal drugs is equally attributed to the advertising and marketing strategies often employed in the sale of herbal products. It is common to see different companies compete for buyers and users of herbal products. It therefore, became imperative to examine the importance of advertising and marketing in the promotion of herbal medicine in Nigeria. Advertising is defined as a paid form of non-personal presentation and promotion of ideas or products by an identified sponsor. Arens, Weigold and Arens (2008,p.7) define advertising as ‘the structured and composed non-personal communication of information usually paid for and usually persuasive in nature about products (goods, services and ideas) by identified sponsors through various media.’ Okoro (2013,p.13) defines ‘advertising as any persuasive communication by an identified sponsor, through the media aimed at selling an idea, product or service to a target audience.’ The import of the above definition implies that advertising messages are designed in a persuasive manner (consider a herbal drug advertiser using persuasive languages to create awareness) and should be through an identified sponsor (consider an ad agency or client who places an advert on herbal drugs), through a medium (consider any of advertising media: television, radio, billboards, electronic kiosks, newspaper, magazine etc) and about a product, idea or service (consider an advert on herbal drugs). Summarily, we see advertising as a paid-mediated presentation of information about services, products or ideas with the specific goal of persuading consumers to act or think in a particular way. It is informative or persuasive message carried by a non-personal

medium and paid for by an identified sponsor whose organization or product is identified in some way’.

Advertising is a form of communication used to persuade an audience (viewers, readers or listeners) to make them take an action with respect to a product. Most advertising messages direct customers to retail stores where the products can be bought. As a consequence, retailers engage in extensive promotional activities by engaging all kinds of media (Ayimey, Awunyo-Vitor, and Gadawusu (2013). Connecting the need for advertising herbal medicine, The World Self-Medication Industry (2008) states that advertising is suited to the transmission of simple and focused messages. Information on both prescription and nonprescription medicines for patients and consumers comes in various forms and from various sources including advertising and labeling, advice from pharmacists or other health professionals, the internet and so on. Each of the information sources contributes in different ways to a patient’s medicines in support of better health. It is obvious that consumer-directed advertising has one principal purpose, that is, to alert consumers to the availability of products for conditions suitable for self medication. However, it must be stated that advertising cannot force people to buy and use a medicine they do not want or need. Thus it is generally accepted that consumer behaviour with respect to the purchase and use of medicines differs greatly from other common items of commerce.

On the other hand, marketing encompasses all activities geared towards buying and selling. Arens, Weigold and Arens (2014,p.14) define ‘marketing as the process of planning and executing the conception, pricing and promotion and distribution of ideas, goods and services to create exchange that satisfies individual and organizational objectives.’ By whatever type of definition, marketing is all around us and affects almost every aspect of our daily life. In marketing herbal drugs, some companies may apply the method of personal selling which involves direct face-to-face relationship with sellers and potential customers which provides immediate feedback that help salespeople to adapt effectively. This type of marketing strategy is based on a person-to-person contact

or through telecommunication means such as the use of telephone. Secondly, a herbal company may adopt direct marketing strategy which refers to sales made directly to the customer rather than through intermediaries. It is a system of marketing in which companies build their own database of customers and use a variety of media to communicate with them directly (Kenechukwu, 2014).

In the case of advertising, a herbal company or its subsidiary may adopt any of the following types of advertising depending on the size, finance and potential customers of the company who patronize the herbal drugs:

- **Print Advertising:** Print advertising is an age-long medium of advertising. It comprises mainly newspaper and magazine advertising. The newspaper offers advertisers large circulation, a readership located close to the advertiser's place of business and the opportunity to alter their advertisements on a frequent or regular basis. According to Okoro (2013), major advantages of the use of newspapers as a medium of advertising include: (a) permanence, (b) visual impact, (c) flexibility, (d) convenience and (e) fidelity/believability. Major disadvantages are (a) poor readership in which case only few people have developed the capacity to read omnivorously and (b) illiteracy which becomes a barrier in the process of communicating the quality of a product to a largely illiterate audience. The magazine, on the other hand, is targeted at specific audiences and links manufacturers to the target audience. The advantages of print media in advertising herbal product are permanence and aesthetic quality. Once printed, the advertised herbal product remains in the consciousness of herbal users whenever they pick the newspaper and review the advert. Its aesthetic quality is an added advantage which magazine offers to advertisers. Okoro (2013) further explains that magazine's special makeup and the combination of colours mark it out as a special medium for special audience and identified the following strengths of magazine as a medium of advertising: (a) prestige in which case, magazine is a prestigious medium for proud advertisers, (b) easy market segmentation in which it is easy to segment the market using demographic,

geographic and psychographic factors and (c) visual impact in which the colourful and glossy nature of magazine adverts delivers visual impact in a very striking manner.

- **Broadcast Advertising:** Broadcasting advertising also known as electronic advertising comprises advertising activities through electromagnetic waves or fibre-optic lines. Radio and television offer manufacturers the added advantage of sound or a combination of sound and images. In modern era, the use of broadcast advertising has widened the horizon of advertising activities due to the size and composition of its audience. While television is outstanding in its ability to provide the advertiser with audio and visuals; the penetrability of radio signal makes it a veritable medium of advertising herbal drugs. Okoro (2013) asserts that television has the ability to demonstrate, illustrate, compare, contrast, persuade and convince in colourful, dramatic and stylistic manner. One major advantage of the use of radio in advertising is its ability to stimulate imagination on the part of listeners as at when we listen tensely to a radio jingle and imagine the persons behind the scene. Radio is relatively cheap and has wider penetration in terms of signal coverage than television.
- **Out-of-Home Advertising:** This type of advertising is usually carried out outside the confines of print and electronic media advertising. Otherwise known as outdoor advertising which is ‘a medium targeted at a mobile audience. It is a reminder medium used to reinforce the recall of brand names and payoffs (Okoro, 2013,p.137). Under this category, we have outdoor and transit advertising. Outdoor advertising is usually displayed in form of billboards or posters mounted by the roadside with advertising messages. Transit or transportation advertising involves the use of posters and signs placed on trains, ships and other types of vehicles in order to advertise a product or service. This equally includes all forms of direct and personal selling techniques of persuading buyers directly. The major

challenge of the out-of-home advertising of herbal product is that most times, the hired marketers do not have adequate information on the drugs they market.

- **Direct-Mail Advertising:** This type of advertising includes all advertising activities done through the postal service or by mail. Occasionally, advertisements can be sent to individuals via postal services. In modern computer age, the use emailing has proved an easier, faster and convenient way of reaching global users of a particular product by just a click of computer mouse. However, the use of e-mail for advertising has been criticized due to its isolated audience as a result of its effectiveness with computer users alone.
- **Interactive Advertising:** In today's digital era, the Internet and other technological devices have proved viable media of advertising. By a way of subscription, an Internet user gets up-to-date notice of advertising activities globally.

2.1.12 Truths and Deceptions in Advertising Herbal Products

Okoro (2013, p.18) states that 'the challenge of advertising in the modern marketing sense is to match promise with fulfillment by ensuring that products claims equal product quality. An advertising that claims what an advertised product is not is merely escorting that product to the graveside.' For advertising of herbal drugs to be effective, consumers must have confidence in it. This means that advertising must be factual, informative and educative; however, some advertisers usually inject deceptions and falsehood in advertising. The following are few deceptions in advertising herbal products:

- **Misleading Advertising:** This includes any advertising that is capable of misleading or deceiving consumers with respect to features like quality, composition, country of origin, expiry date and price etc. In advertising herbal drugs, the advertiser may use ambiguous and misleading superlatives about a herbal product. This is usually persuasive in nature. This type of advertising is distorted and full of superlatives such as 'safe' 'added Aloe Vera' etc. Advertising of herbal

drugs should not contain misleading or unverifiable statements of omissions likely to induce medically unjustifiable drug use or to rise to undue health risks. The word 'safe' should only be used if properly qualified and certified by a competent regulatory agency.

- **Bait-and-Switch Advertising:** This is a situation where advertisers illegally advertise products at specific price knowing that it would be unable to supply reasonable quantities at the same price at a given period of time (Kenechukwu, 2014). Ike (2005,p.18) defines it as 'an illegal advertising strategy (of herbal products) in which a seller baits customers by an advertisement with a low priced model of a product but then switches customers who seek to buy the product to a much high priced model by telling them that the cheaper model does not work well or is no longer in stock. In this case, the advertiser of herbal product advertises the original drugs and switches to the substandard drugs at the same price when the demand is high.
- **Palming Off:** Here, a company's inferior product is misrepresented as superior product of another company for the purpose of gaining economic advantage and patronage. It is now a common practice among local companies producing similar products to package or use similar trade name of foreign products in order to package or use similar trade name of foreign products in order to make the buyers feel that the inferior product is the superior product (Kenechukwu, 2014). This involves a subtle way of advertising inferior herbal product as superior one by slightly modifying the label name or using similar advert messages; for instance, '7-Keys Power' herbal mixture may be relabeled '7-K Power'. In this case, users may not take cognisance of the omission of 'eys' in the '7-Keys Power'.
- **Puffery:** Puffery is advertising or other sales presentations that praise the item (herbal product) to be sold using subjective opinions, superlatives or exaggerations, vaguely and generally stating no specific facts. It is an exaggeration of praise

lavished on a product that stops just short of deception. It is usually common among local sellers of herbal drugs in buses or motor parks. Here, a herbal drug seller makes ambiguous efficacy claims that are unsubstantiated. He tries to persuade users to buy such herbal drugs on the premise that they are potent when in fact, they are valueless and poisonous.

2.1.13 Ethical Criteria for Advertising and Promotion of Herbal Drugs

Ethical criteria for advertising and promotion of herbal drugs vary according to countries; however, they bear some semblances in nature of advertising and promotion. The World Health Organisation (1988 and 2004) provide for the following ethical criteria for medicinal drug promotion viz:

- i. Ethical criteria for the promotion of exported drugs should be identical with those relating to drugs for domestic use. It is desirable that exporting and importing countries should use the WHO Certification Scheme on Quality of Pharmaceutical Products Moving in International Commerce.
- ii. On promotions, active promotion within a country should take place only with respect to drugs legally available in the country. Herbal promotions should be in keeping with national health policies and in compliance with national regulatory agencies.
- iii. On packaging and labeling, appropriate information is important to ensure the rational use of drugs, all packaging and labeling material should provide information consistent with that approved by the country's drug regulatory authority.
- iv. Substantiated information on hazards associated with medicinal drugs should be reported to the appropriate national health authority as a priority, and should be disseminated internationally as soon as possible.
- v. On advertising, the wording and illustrations in advertisements to physicians and related health professionals should be fully consistent with the approved scientific data sheet for the drug concerned or other source of information with similar contents.

Similarly, on ethical issues on advertising of nonprescription medicines to the public, the World Self-Medication Industry (2008) explains nonprescription medicines as medicines which are approved as safe and effective for use without a doctor's prescription. Advertising creates awareness of nonprescription medicines, helps consumers in the search for products they need, and directs consumers to labeling that supplies details essential for safe and appropriate product use. To this end, it states that information on labels and leaflets is essential aspect in the promotion and advertising of herbal medicines. Label and leaflet information is important in both prescription and nonprescription herbal medicines although these can still be supplemented by advice from pharmacists or other health professionals when needed. Consumer behaviors should be taken into account when elaborating the wording to be placed on advertisements or outer packaging of products. Much effort goes into the design and wording of the labels and leaflets of nonprescription medicines for detailed information.

The APMI Code (2010) outlines the following general rules of advertising of medicinal plants viz:

- i. A medicinal product must not be promoted prior to receipt of the marketing authorisation or certificate of traditional-use registration authorising its sale.
- ii. An advertisement in respect of a herbal medicinal product must not be issued unless (i) all parts of the advertisement comply with the particulars set out in the summary of product characteristics for the product, (b) the advertisement encourages the rational use of the medicinal product by presenting it objectively and without exaggerating its' properties, (c) the advertisement is not misleading and (d) the advertisement meets fully the requirements of the relevant legislation.
- iii. An advertisement must not persuade or tend to persuade towards the unnecessary use of the product.
- iv. All information in an advertisement must be capable of substantiation. Claims must not be exaggerated and the use of superlatives should be avoided. The use of statistics and technical data must be accurate and must not be presented in such a way as to exaggerate the validity of a claim.

- v. Wording which implies superior or superlative status such as “number one”, “leading”, “largest” etc. must be capable of substantiation with market share data or similar proof.
- vi. The design and presentation of advertising materials must allow them to be clearly understood. Where footnotes or small print sections are used, they must be of sufficient size and prominence and be easily legible.

Summarily, the National Agency for Food and Drug Administration and Control (2015) on nature and prohibition of advertisements of herbal drugs and related products outline the following regulations:

- a. No person shall advertise (a) any herbal drug (medicine) and related product unless it has been registered by the Agency, (b) any herbal drug (medicine) and related product unless the advertisement has been given pre-clearance and approval by the Agency, (c) any extemporaneous herbal and related medicinal preparations and (d) a product as a cure for any disease conditions as in above.
- b. The advertisement in Nigeria of any herbal drug (medicine) or related product shall be accurate, complete, clear and designed to promote credibility and trust by the general public and healthcare practitioners and statements illustration shall not be misleading directly or by implication.
- c. On non-referential advertisement, no advertisement of a herbal medicine or related product shall (a) imitate the general layout, text slogan or visual presentation of another herbal medicine or related product in a way likely to mislead or confuse the consumer and (b) be framed in such a manner as to exploit any superstitions or be calculated to induce fear among consumers, causing them to purchase herbal medicine or related product being advertised.

2.1.14 Health Information: An Overview

Information is simply cognition and health is the state of complete physical, mental and social wellbeing. The mass media collect, store, process and disseminate news and messages in order to bring about attitudinal change and make the audience to take

appropriate decisions. Information is the live-wire of the society thus the information function of the mass media is all-encompassing and indispensable for the meaningful existence of members of the society (Kenechukwu, 2014). Nwabueze (2009,p.230) sees health reporting(information) ‘as the process of gathering news or information on health and health-related matters. This involves writing the story in an understandable manner for the consumption of the audience of a specific medium. It also involves a specialized area of journalism which consists of gathering information on the *who, what, when, where, why* and *how* of newsworthy health developments and trends.’

Health information involves the dissemination of health-related communication and messages through the mainstream media outlets. It also involves the use of face-to-face interaction to engage in health-related discussions. Health information can be obtained through (a) television news programmes (b) newspapers (c) radio (d) magazine (e) Internet websites and (f) scientific journals on health and medical-related articles. The coverage is often criticised for being misleading, inaccurate or speculative (Larsson, Oxman, Carling and Herrin, 2003).

There is apparent dearth of literature on health information. This is because of emerging field of health communication that is yet to permeate the academic curricula of most tertiary institutions in Nigeria. In the case of herbal drugs, there is apparent inadequate documented information or inaccessibility to health information that leads to misplaced judgment on herbal issues and may lead to patronage of unhygienic herbal preparations.

Batta (2013) observes that the problems of herbal drugs in Nigeria have been the reluctance of herbalists to divulge their medicinal secrets. Many renowned herbal doctors have had to die with their knowledge of medicinal plants and their uses in the treatment of diseases. In this respect, there should be adequate information flow between the herbal practitioner and his clients in order to eliminate the risk associated with inaccessibility to information.

Information forms the fulcrum of the campaign on effective use of herbal drugs. Different forms of health information include the use of interpersonal communication and mass media. At the interpersonal level, health information relies on strong interaction in order to influence health decisions and behaviours. At the mass media level, it is used to promote beneficial changes in behavior among members of populations. A major criticism of the use of mass media as a method of health communication is the unfortunate ability for false and misinformed messages to spread quickly especially the Internet

Under '*Safety Monitoring of Herbal Medicines*' the World Health Organization (2004) through the Council for International Organizations of Medical Sciences (CIOMS) Working Group V recommended that, as a general guiding principle, emphasis should be placed on the quality of a report and not on the its source. In this case, the value of a report lies not in who made it, but in the care and thoroughness with which it is prepared, documented, received, recorded, followed-up, clarified and analyzed. According to the study, adverse drug reaction reporting systems in the post-marketing safety surveillance setting depend primarily on voluntary reporting by healthcare professionals, preferably those directly associated with the care of the patient/consumer.

Health information regarding the use of herbal medicine is usually a tripartite formula involving the (a) health professionals who are providers of herbal medicines including physicians, pharmacists and nurses who should report to the national pharmacovigilance, (b) patients/consumers who should normally report to their physicians or providers of herbal medicines and (c) manufacturers who should report directly to the national pharmacovigilance centres or national regulatory authority.

In herbal medicine, WHO (2004) outlines that a case report should contain the following elements:

- a. where it is permitted by the country health information privacy code, and with appropriate confidentiality, some form of identification of the patient/consumer in order to avoid duplications and facilitate follow-up
- b. age, sex and a brief medical history of the consumer/patient (when relevant); in some countries, ethnicity may need to be specified
- c. details of suspected herbal product(s) if known: species name (Latin binomial name and common vernacular name of medicinal plant) and/or brand or ingredient name(s), including the part of medicinal plant used, preparation methods; manufacturer, country of origin, batch number, expiry date and provider,
- d. administration details: dose and quantity supplied, dosage form, route, start/stop dates,
- e. indication or reason for use,
- f. adverse reaction data: date of onset (or duration from first administration to onset of event), description with symptoms and signs, severity and seriousness, results of clinical investigations and tests, course and outcome, and dechallenge/rechallenge with the same product, where appropriate,
- g. all other medicines used (including self-medication), with administration details,
- h. risk factors, e.g. age, impaired renal function, previous exposure to the herbal medicine(s) concerned, previous allergies, drug misuse or abuse, the social use of drugs and,
- i. name and address of reporter (to be considered confidential and to be used only for data verification, completion and case follow-up).

2.1.15 Sources of Reports on Herbal Drugs

The sources of reports on herbal drug use may be categorized into:

- Reports from mass media
- Reports from healthcare professionals

- Reports from manufacturers of herbal drugs
- Reports from consumers (herbal drug users)
- Reports from specialized sources such as national drug information centres such as NAFDAC, consumer organizations and clinical trials and research centres.

Reports from Mass Media

The fundamental functions of the mass media are to educate, inform and entertain the mass audience. It provides a veritable channel for the dissemination of information on herbal medicine. Such media of communication include: television, radio, newspaper, magazine and to some extent, the Internet. The combination of audiovisual quality and high aesthetic value of television make it a good medium of disseminating health information on use of herbal drugs in Southeast, Nigeria. All the five States in Southeast Nigeria have state-owned radio and television stations that air health programmes on the use of herbal drug as alternative medicine. Anambra Broadcasting Service in conjunction with Anambra State Government is known to have organized periodic trade fairs and exhibitions on herbal medicines in Onitsha and other parts of the State. This is shown on the State-owned television as a way of encouraging herbal practice and creating awareness on the health prospects and challenges of herbal drugs.

Radio is another source of health information on the use of herbal drug in Southeast Nigeria. The ubiquity of radio as a medium of communication makes it a powerful force to be reckoned with in the dissemination of health information on herbal medicines due to its penetrability and flexibility. Radio is everywhere since its signals are carried on the electromagnetic spectrum to almost every nook and crannies of the world. Its penetrating force makes it an easy and readily accessible means of communication as it reaches the remotest parts of the world (Kenechukwu, 2014). The major advantage of use of radio in the dissemination of health information on herbal use is due to the depth of its penetration, affordability and flexibility. Its penetrability means that its signal can reach the remotes parts which increase its advantage to use to disseminate health information more than television. Its affordability means that radio is not inhibited by socioeconomic

factors and its flexibility is that breaking news on health or other issues can be easily and readily inserted into a running news bulletin. This means that urgent information on health can be disseminated through radio than any other medium.

Newspapers and magazines are also sources of report on herbal use. The printed word has a lasting power far beyond that of the spoken word or visual images. Both are important sources of reports on herbal drug use due to their distinct qualities of reviewability and permanence. Explaining the above qualities of newspaper and magazine as sources of reports on herbal drugs, Kenechukwu (2014) states that the reviewability and permanence qualities of print media (newspaper and magazine) hinge on the fact that readers can refer to information published in newspaper or magazine again and again. This reviewability of newspaper content increases the reporter's feeling that he is writing history and contributes to the newspaper's position as a stabilizing and continuing institution in the community. The aesthetic value of magazine is a plus to the appreciation of health information on herbal drugs such the popular magazines like 'Family Health Guide' and 'Health Magazine'.

Reports from Healthcare Professionals

Healthcare professionals are equally sources of health information on herbal drug use. According to WHO (2004) Guideline on Safety Monitoring of Herbal Medicines in Pharmacovigilance Systems, community pharmacists and nurses can play a particularly useful role in monitoring the safety of non-prescription medicines, although many such products are sold outside pharmacies. This is appropriate because adverse drug reaction reporting systems in the post-marketing safety surveillance setting depend primarily on voluntary reporting by healthcare professionals, preferably those directly associated with the care of the patient/consumer.

Reports from Manufacturers of Herbal Drugs

Manufacturers of herbal drugs are another source of information on the uses and adverse effects of certain herbal drugs. Manufacturers of packaged or processed herbal drugs are required by law to indicate on a leaflet the constituents of such herbal mixture, the dosage administration and likely reactions of such herbal drug. WHO (2004) states that consumers may report directly to companies or their representatives about their findings of such herbal drug.

Reports from Consumers (Herbal Drug Users)

Herbal drug users are good sources of report on the use and adverse effects of herbal medicine. According to WHO (2004) Guideline on Safety Monitoring of Herbal Medicines in Pharmacovigilance Systems, 'the involvement of consumers in the use of herbal medicines and herbal products in healthcare and their concern regarding possible adverse effects should be valued positively. It is, therefore, an essential development if adequate information on risk associated with herbal drug is to be obtained.'

Reports from Specialised Sources such as National Drug Information Centres such as NAFDAC

Specialized government health agencies such as National Agency for Food and Drug Administration and Control (NAFDAC) can be a veritable source of health report on the manufacture, preparation, sale and administration of all drug-related substances in the exercise of the powers conferred on the Governing Council of NAFDAC by Section 5 and 30 of the National Agency for Food and Drug Administration and Control Act Cap NI Laws of the Federation of Nigeria (LFN) 2004 and all powers enabling it in that behalf. As a regulatory agency, NAFDAC provides the guidelines for drugs and related products.

2.2 EMPIRICAL REVIEW

Many studies have been carried out in the area of herbal drugs, its efficacy claims and users' belief system. This section reviewed some concluded research studies in related field. However, these studies point to the fact that despite the many challenges facing effective use of herbal drugs (medicine) in Nigeria, herbal drugs afford clinical and research opportunities that should not be neglected when greater regulation of these products is considered.

In the study '*Use of Herbal Medicine among Adult Residents in Calabar Metropolis, Cross River State, Nigeria*', Osuchukwu., Eko., Abia and Ochei (2017), examined the use of herbal medicine among adult residents in Calabar metropolis, Cross River State, Nigeria. The study employed cross-sectional descriptive study design carried out between June 2016 to August 2016. A 20-itemed, semi-structured questionnaire was used to generate data from 208 respondents which were drawn using multi-stage random sampling technique. Data generate were analyzed using Statistical Package for Social Sciences (SPSS version 22.0) and results were presented in tables and charts. Pearson product moment correlation coefficient was used to test the four hypotheses at 0.05 level of significance. The findings showed that there is high preference to the use of herbal medicine among the studied respondents. The study recommended that a pharmaceutical regulatory body should be instituted to monitor the activities of herbal practitioners and ensure that herbal medical products are standardized, quantified and safe for consumption.

In a study titled '*Traditional and Commercial Herb Use in Health Self-Management Among Rural Multiethnic Older Adults*' Altizer, Quandt, Grzwacz, Bell, Sandberg and Arcury (2013) analyzed the role of traditional and commercial herbs in older adults' health self-management based on Leventhal's Self-Regulatory Model conceptual framework. Sixty-two African American and white adults age 65 and older completed qualitative interviews describing the forms of herbs currently being used, sources of

information about them, interpretations of health (acute symptoms or chronic conditions) that lead to their use, and the initiation and suspension of use.

Traditional herbs are native to the region or have been traditionally cultivated; usually taken raw or boiled to produce tea; and used for treating mild symptoms. Commercial herbs are prepared as pills, extracts, or teas; they are purchased at local stores or ordered by catalog or internet; and used for health promotion, illness prevention or treatment of chronic conditions. Herbs are widely used among older adults; this analysis differentiates the types of herbs they use and their reasons for herbs use. The study employed the survey method of inquiry in which case participants were selected from three counties in south central North Carolina.

The counties from which study participants were selected are rural and have higher rates of poverty than the state or nation, with two of the three counties having poverty rates that exceeded 25%. The study found out that the older adults who are using herbs have not abandoned conventional medical care; to the contrary, they value conventional medical care and they use it extensively. However, the continued use of herbs may interfere with the use of therapies prescribed by conventional health care providers. The study recommends that despite concerns about the efficacy and safety of herbs, health care providers need to know about patients' herb use in order to design the most effective health care plan for each patient.

Olowokere and Olajide (2013) carried out a study on *'Women's perception of safety and utilization of herbal remedies during pregnancy in a local government area in Nigeria.'* The study examined the perception of safety and utilization of herbal remedies during pregnancy using a convenience sampling of 300 women. The women who participated in the study were selected at household level from rural communities in Ife-North local government area of Osun state in Nigeria. Data was collected with the aid of semi-structured questionnaire using interviewer-administered method after informed consent had been taken from each participant. The results show that the women had positive perception about the safety and efficacy of herbs over conventional drugs in pregnancy. Greater percentage of the participants studied had used herbs at one point or the other

during pregnancy. Local concoction also referred to as “*Agbo*” was the most used herbs by the women. The need for laboratory exploration of these herbs was emphasized by this study because of the high usage by pregnant women without any empirical evidence on its safety and efficacy.

In a similar study titled ‘*Herbal Medicine Use Among Urban Residents in Lagos, Nigeria*’ carried out by Ibrahim, Kazeem and Amachree (2011) aimed at assessing the extent of use and the general knowledge of the benefits and safety of herbal medicines among urban residents in Lagos, Nigeria. The study involved 388 participants recruited by cluster and random sampling techniques. In this study, Surulere LGA was divided into ten clusters, each cluster representing a ward and forty adult (18years and above) participants were selected randomly from each household in a ward. Participants were interviewed using structured open-and close-ended questionnaire.

Apart from the demographic information, the questionnaire covered salient questions on the types, sources, benefits and adverse effects of the herbal medicine used by the participants. For data analysis, a total of 12 herbal medicines (crude and refined) were used by the respondents either alone or in combination with other herbal medicines. It was discovered that herbal medicines were reportedly used by 259(66.8%) respondents. ‘*Agbo Jedi Jedi*’ (35%) was the most frequently used herbal medicine preparation, followed by ‘*Agbo-iba*’(27%) and *Oroki* herbal mixture (9%). It was equally discovered that family and friends had a marked influence on 78.4% of the respondents who used herbal medicine preparations. The study concludes that herbal medicine is popular among the respondents but they appear to be ignorant of its potential toxicities. It may, therefore, be necessary to evaluate the safety, efficacy and quality of herbal medicines and their products through randomized clinical trial studies.

In another study titled ‘*Press Coverage of Traditional Medical Practice in Nigeria*’, Batta (2012) examined the extent to which Nigerian national dailies cover traditional (herbal) medicine in Nigeria using content analysis research method. The daily newspapers understudy were *Daily Trust*, *The Guardian*, *The New Nigerian* and *The*

Punch newspapers published between January 1, 2005 and December 31, 2006. This gave a sample of 416 issues of four selected newspapers. Analysis was done using frequency and percentage scores and presented in tabular form.

The result shows that newspaper coverage of traditional medicine issues compared with that of orthodox medicine falls short of expectation. Though coverage was dismal in the print media, their portrayal was generally positive but rarely illustrated with relevant graphics to enhance interest and understanding. The conclusion is that knowledge deficit among journalists regarding traditional medicine issues may be responsible for the poor coverage (particularly in terms of frequency) of traditional medicine issues in Nigerian newspapers. The study recommended among others that Nigerian newspapers should consider traditional medicine issues weighty enough for frequent, consistent, prominent coverage to reflect the importance the populace, government and the international community attach to them.

In the study '*A Comparative Assessment of Herbal and Orthodox Medicine in Nigeria*', Osemene, Elujoba and Ilori (2011) examined assessed attributes of herbal and orthodox medicines such as affordability, packaging, availability, efficacy, safety, side-effects and level of advertisement in print and electronic media which were hitherto neglected. Structured questionnaire and interview schedule were the instruments used to elicit information from 300 herbal and orthodox medicine consumers selected from six geographical zones in Nigeria through purposive and convenient sampling method. Data were analyzed with appropriate descriptive and inferential statistics.

Results showed that the respondents rated herbal medicines higher than orthodox medicines in terms of safety and the degree of advertisement. Other parameters were rated higher for orthodox medicines. The mean value of all parameters was significant at $p \leq .05$. Also only 41% of the respondents took herbal medicines as their first drug of choice. This is contrary to the widely held view in literature that >80% of the population in developing countries takes only herbal medicines.

In a similar study titled '*Herbal Medicine: A Survey of Use in Nigerian Presurgical Patients Booked for Ambulatory Anaesthesia*', Onyeka, Ezike, Nwoke, Onyia, Onuorah, Anya and Nnacheta (2012) examined the utilization of herbal medicines in the preoperative period by Nigerian patients booked for day case surgery. Using a cross-sectional survey of 60 patients presenting for day-care surgery at a tertiary healthcare institution over a 3-week period in August was conducted.

Using a structured questionnaire, inquiries were made concerning use of herbal medicines in the immediate preoperative period. Socio-demographic characteristics, information on use of concurrent medical prescriptions, type of herbs used, reasons for use, perceived side effects and perceived efficacy were obtained. Data were evaluated using a descriptive statistics and Chi-square.

Results show that fifty-two (86.7%) were American Society of Anesthesiologists (ASA) class 1 while 8(13%) were ASA 2. Most patients (86.7%) had their procedures done under local infiltration with monitored anesthesia care (MAC), while 5.0% and 8.3% had their procedures done under regional and general anesthesia respectively. About 48.3% of respondents were on concurrent medical prescriptions while 51.7% were not. Forty percent (40%) of patients admitted to use of herbal medicine, all by the oral route, in the immediate perioperative period; 87.5% did not inform their doctor of their herbal use. Types of herbs used included '*dogonyaro*', '*agbo*', '*nchanwu*' and '*Tahitian noni*'. Treatment of malaria was commonest reason for use in 29.2% of patients, while cough and concurrent surgical condition were reasons given by 12.5% of patients respectively. Seventy-nine percent (79.2%) of patients considered their herbal medications effective. Perceived side effects of herbal medication (16.6%) included fever, waist pain and intoxication. There were no variations in use between ASA I and ASA 2 patients and none between respondents on conventional medication against those that were not. Variables such as age less than 35 years, female gender, being married and being an urban dweller did not show any significant difference in use. The findings of the study reveal that many patients were on one or more herbal preparations in the immediate

preoperative period. In consideration of possible untoward drug interactions between conventional medication, herbal preparations and anesthesia, doctors (especially anesthetists) should routinely assess all patients booked to be anaesthetized, especially those for day case surgery. The authors recommended surveys with larger respondent numbers to determine prevalence of use and possible interactions between indigenous Nigerian herbs and anesthesia.

Another study '*Traditional Medicine Policy and Regulation in Nigeria: An Index of Herbal Medicine Safety*' carried out by Awodele, Amagon, Wannang and Aguiyi (2014) was designed to assess the policy and regulations guiding herbal medicine in Nigeria as information was used as a safety index of herbal medicine use in Nigeria. The study sought to find out the requirements and methods for research and evaluation of the safety and efficacy of herbal medicines than those of the conventional pharmaceuticals. The researchers used structured questionnaire adopted from WHO to obtain the opinions of relevant stakeholders in the field of herbal medicine on the policy and regulation of herbal medicine in Nigeria.

The findings show that 68.8% of respondents agreed that there is a national policy on TM with 31.2% disagreeing on this issue. 75% of respondents agreed that implementation of the manufacturing requirements of herbal medicines is ensured by control mechanism while 25% disagreed. Only 25% said herbal medicines are sold by licensed practitioners, with 75% believing that herbal medicines are sold by non-licensed practitioners. 87.5% said support from the WHO is needed and should be in the form of workshops on national capacity building on safety monitoring of herbal medicines. The study recommends that there is need for the Federal Ministry of Health to harmonize the varying opinions on traditional medicine and policy as documented in this study through collaboration and workshops on traditional medicine. These proposed approaches may guarantee the safety and regulation of herbal medicine use in Nigeria.

In the study *'Herbs in Orthodox Practice: A View by Medical Students'* Enwere (2009) assessed the use and opinion on herbs among students of Imo State University Nigeria. Information on herb use, indication and opinion from returned self-administered questionnaire was analyzed. A total of 114 students (91.2%) of 125 respondents. 32(28.1%) students had used herbs before, a significant proportion being males (OR 3.7). Herbal tea was the most popular herb use; maintaining good health and treating malaria were the only indications (50% each). Most students (>90%) believe herbs to be harmful, and generally unsafe especially in pregnancy. Most students (73%) who had used herbs consider them effective in treating hypertension or diabetes mellitus (OR 3.5 & 6.0 respectively). Most students (89.1%) believe there is a lot of misinformation about herbs. Most students view use of herbs with skepticism. It observed that the use of herbs among medical students is low.

Commonly used herbs are the garlic and ginger. Most students have a poor opinion about herbs despite admission to a lot of misinformation about herbs. The study recommends that since medical practitioners are likely to be approached if students have queries about herbs, it is important to have some knowledge about herbs introduced in the medical curriculum.

In another study *'Difference Between Herbal and Nonherbal Users in Dental Practice'*, Tam, Gadbury, Cobb and Williams (2006) examined the basic demographics and health belief differences between users and non-herb users, any potential herb-drug interactions and examine the association between dental chart noted and questionnaire self-reported use of herbal remedies. In this study, a 3-part survey instrument was administered to a convenience sample of 149 individuals at a dental clinic and two dental practices.

The first part ascertained demographic information and prescription drug use open-ended and close-ended questions. The second part listed 51 individual/combination herbs and the third part assessed healthcare behavior using a 5-point Likert scale. A chart audit compared written responses between a patient's medical/dental history chart and his/her

survey on herbal use. Descriptive analyses and ANOVA were used to examine the relationship between herbal use and nonusers. From the analysis done, the study recommended supportive evidence that dental hygiene practitioners need to be aware of their patient's use of herbs. Knowing potential risks, side effects and possible drug interactions is necessary for patient management and each patient's oral health.

In a study on '*Use of Herbal Products and Potential Interactions in Patients with Cardiovascular Diseases*' Ara, Viqar and Arshad (2010) examined the influence of use of herbal product and potential interaction in patients with cases of Cardiovascular disease and observed that more than 15 million people in the United States consume herbal remedies or high-dose vitamins. The number of visits to providers of complementary and alternative medicine exceeds those to primary care physicians, for annual out-of-pocket costs of \$30 billion.

Use of herbal products forms the bulk of treatments, particularly by elderly persons who also consume multiple prescription medications for comorbid conditions, which increases the risk of adverse herb-drug disease interactions. Despite the paucity of scientific evidence supporting the safety or efficacy of herbal products, their widespread promotion in the popular media and the unsubstantiated healthcare claims about their efficacy drive consumer demand. In this review, the authors highlighted commonly used herbs and their interactions with cardiovascular drugs. The study also discussed health-related issues of herbal products and suggest ways to improve their safety to better protect the public from untoward effects.

Zick, Schwabl, Flower, Lac, Chakraborty and Hirschokorn (2009) in their study on '*Unique Aspects of Herbal Whole System Research*' sought to examine whole systems of healthcare offer unique methodological and theoretical challenges for researchers. Herbalism has its own set of methodological and philosophical research issues, which are beyond those presented for whole system research, in general.

In the study, five major challenges unique to herbal whole systems research were identified: (1) Defining herbalists and herbalism; (2) role of natural products industry in herbal research; (3) designing placebos and delivering active herbal treatments as are given by herbalists; (4) researching the herb as a living entity; and (5) designing trials to investigate and develop multi-component herbal therapies. To design studies of herbalism requires unique methods and theoretical frameworks. The study recommends that solutions to these methodological challenges need to be addressed to conduct research that examines herbal systems of medicine versus conducting trials on individual herbs given out of their original therapeutic context.

In another study '*Why Patients Use Alternative Medicine: Results of a National Study*', Astin (1998) sought to investigate possible predictors of alternative healthcare use. Research both in the United States and abroad suggests that significant numbers of people are involved with various forms of alternative medicine. However, the reasons for such use are, at present, poorly understood. The study raised three primary hypotheses were tested and findings showed that people seek out these alternatives because (1) they are dissatisfied in some way with conventional treatment; (2) they see alternative treatments as offering more personal autonomy and control over health care decisions; and (3) the alternatives are seen as more compatible with the patients' values, worldview, or beliefs regarding the nature and meaning of health and illness. Additional predictor variables explored included demographics and health status. The study employed a written survey examining use of alternative health care, health status, values, and attitudes toward conventional medicine.

Multiple logistic regression analyses were used in an effort to identify predictors of alternative health care use. Data analysis shows that a total of 1035 individuals randomly selected from a panel who had agreed to participate in mail surveys and who live throughout the United States. Dissatisfaction with conventional medicine did not predict use of alternative medicine. Only 4.4% of those surveyed reported relying primarily on alternative therapies. The study recommends that along with being more educated and reporting poorer health status, the majority of alternative medicine users appear to be

doing so not so much as a result of being dissatisfied with conventional medicine but largely because they find these health care alternatives to be more congruent with their own values, beliefs, and philosophical orientations toward health and life.

2.2.1 Gap in Literature

From the literature above, few gaps were identified in the literature. First, available literature indicated that most herbal products produced in Nigeria are used for cure of ailments rather than as food supplements. The slant of available literature is mainly foreign-based which often portrays herbal products as only food supplements. This is supported by the findings of Shehu and Sheshi (2007) that absence of adequate literature on Nigeria-based study on herbal drug is a setback on improvement of the study and use of herbal medicine in Nigeria.

Second, a noticeable gap in literature is the fact that herbal use in Nigeria especially in Southeast Nigeria is poorly documented as most users do not access information leaflets on such herbal drugs before use. This has created a setback for Nigerian herbal product to meet global standards. It has equally aided abuses in the manufacture, distribution and administration of herbal drugs.

To bridge this gap in literature, the studies of Shehun and Sheshi (2007); Okonkwo (2015); Olagunju (2012) and Iroegbu (2011) suggest that the government should integrate traditional medicine into the curriculum of medical studies so that there will be a shift from unscientific approach to herbal use and preparation to an objective and scientific approach of herbal utilisation.

2.3 THEORETICAL FRAMEWORK

The study is anchored on the knowledge-gap theory and health belief model. Knowledge-gap theory which is a communication theory hinges on the assumption of systematic differences in knowledge between better-informed and less-informed segments of a population. On the other hand, Health belief model (HBM) is used to understand health behaviour and possible reasons for non-compliance with recommended health action by providing guidelines for programme development allowing planners to understand and address reasons for non-compliance (Becker and Rosenstock, 1984).

2.3.1 Knowledge-Gap Theory

The knowledge-gap theory refers to the structured differences in information levels and groups in the society, often categorised into better-informed (usually found in cities where information is easily accessible) and less-informed (usually found in rural areas where information is not readily accessible) segments of a society. This means that in a society, there is the tendency that people with more education will acquire knowledge of public issues more quickly than those with less education.

Knowledge-gap theory was developed by a team of researchers at the University of Minnesota. The team developed a theory of society in which mass media and the use of media messages play a central role. From the studies conducted in the cities and rural areas, the team began by empirically establishing that news media systematically inform some segments of the population, specifically persons in higher socioeconomic groups, better than they do others. Over time, the difference between the better-informed and the less-informed segments tend to grow – the knowledge gap between them gets larger and larger (Baran & Davis, 2006).

While mass-mediated information considerably raises the average and minimum level of ‘knowledge’ in a society and the speed of circulation of information, there is a good deal of dispute continued inequalities and about the varying capacity of different media to achieve these results. To this end, Gaziano (1983) maintains that it has long been assumed that the press and broadcasting have added so greatly to the flow of public

information that they will have helped to modify differences of knowledge resulting from inequalities of education and social position.

Collaborating with above assertion, Tichenor (1970) cited in McQuail (2005) argues that knowledge gap hypothesis does not hold that lower status population segments remain completely uninformed (or that the poorer in knowledge get poorer in an absolute sense). Instead the proposition is that growth of knowledge is relatively greater among the higher status segments. There is certainly a class bias in attention to 'information-rich' sources, and strong correlations are persistently found between social class, attention to these sources and being able to answer information questions on political, social or economic matters.

McQuail (2005) further identifies two main aspects to the knowledge gap hypothesis: one concerning the general distribution of aggregate information in society between social classes, the other relating to specific subjects or topics on which some are better informed than others. As to the first 'gap', it is likely to have roots in fundamental social inequalities which the media alone cannot modify. As to the second, McQuail (2005) states that there are many possibilities for opening and closing gaps, and it is be named as relevant to the direction of the media effect.

The major weakness of this theory is its dysfunctional nature coupled with its ability to limit focus to gaps involving news and social conflicts. However, its major strength is that it provides ideas for overcoming gaps. To this end, Baran and Davis (2006) point out that all segments of a community will become informed when (a) the relevance of that knowledge has been increased by an escalating social conflict and (b) increased news coverage from either local or outside sources provide better access to information.

2.3.2 Relevance of Knowledge-Gap Theory to Study on Herb Use

One of the concerns of the study hinges on determining correlation between access to information and level of awareness of side effects of medicinal herbs. The knowledge-gap theory in the context of current study implies that all segments of a community (herb users) will become informed when the relevance of that knowledge has been increased

by an escalating social conflicts and increased news coverage from either local (manufacturers of herbal drugs) or outside sources (distribution chains) provides better access to information.

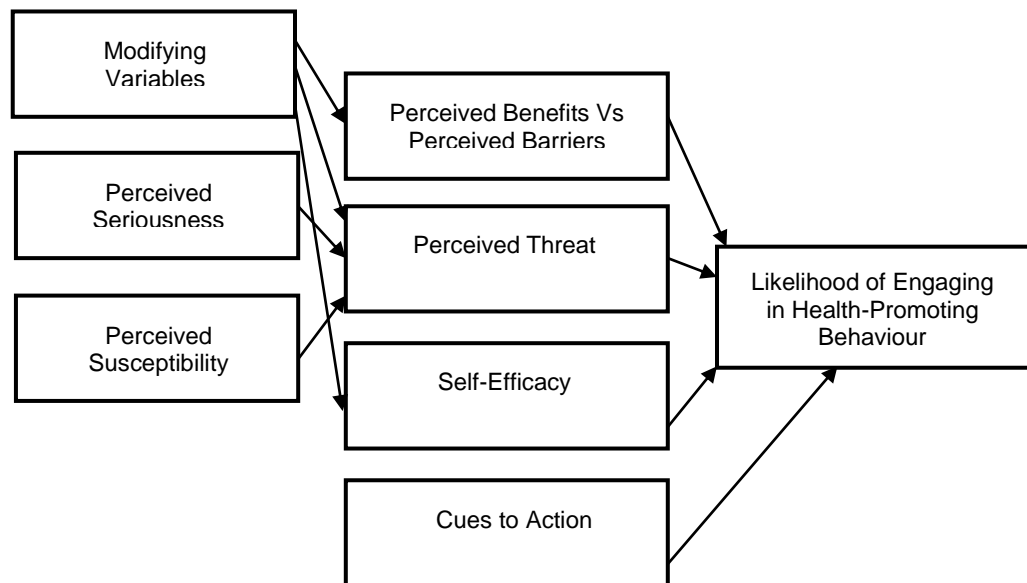
McQuail (2005) suggests that in general, motivation and perceived utility influence information seeking and learning, and these factors come more from the social context than from the media. It has, however, been argued that different media may work in different ways and that print media are more likely to lead to a widening of gaps than is television because these are the favoured sources for the favoured classes.

The suggestion that television can have a reverse effect (benefiting the less privileged) is based on the fact that it tends to reach a higher proportion of a given population with much the same news and information and is widely regarded as trustworthy. However, much depends on the institutional forms adopted in a given society. From the above, the dominant outcome has been that newspapers have been better at closing gaps than television. Current expectations are that new media are more likely to widen than to close gaps because of their differential availability to the already better informed.

2.3.3 Health Belief Model (HBM)

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviours. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. The health belief model suggests that people's beliefs about health problems, perceived benefits of action and barriers to action, and self-efficacy explain engagement (or lack of engagement) in health-promoting behaviour. A stimulus, or cue to action, must also be present in order to trigger the health-promoting behavior (Janz & Becker, 1984 and Rosenstock, 1974).

The Health Belief Model (HBM) can be illustrated thus:



Source: Rosenstock (1974) and Glanz, Rimer and Viswanath

Health Belief Model

The model postulates that health-seeking behaviour is influenced by a person's perception of a threat posed by a health problem and the value associated with actions aimed at reducing the threat (Ebeze and Odemelam, 2015). According to Adum (2011, pp.41-2), health beliefs refer to 'psychological health behaviour that explains our understanding of health issues by focusing on the attitudes and beliefs of individuals. It is a perception of a person's health. The core assumptions of the model are: (a) that a person feels that a negative health condition can be avoided, (b) that a person has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition and (b) that the person believes that he/she can successfully take a recommended health action.'

The works of Janz and Becker (1984), Rosenstock (1974) and Glanz, Rimer and Viswanath (2008), Carpenter (2010) and Rosenstock, Stretcher and Becker (1988) identify the following theoretical constructs of the Health Belief Model (HBM) viz:

- **Perceived Severity:** Perceived susceptibility refers to subjective assessment of risk of developing a health problem. The health belief model predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem. There is wide variation in a person's feelings of personal vulnerability to an illness or disease.
- **Perceived Susceptibility:** This refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). Perceived susceptibility refers to subjective assessment of risk of developing a health problem. The health belief model predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem.
- **Perceived Benefits:** Health-related behaviors are also influenced by the perceived benefits of taking action. This refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease).
- **Perceived Barriers:** This refers to a person's feelings on the obstacles to performing a recommended health action. Perceived barriers refer to an individual's assessment of the obstacles to behavior change. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior.
- **Modifying Variables:** Individual characteristics, including demographic, psychosocial, and structural variables, can affect perceptions (i.e. perceived seriousness, susceptibility, benefits, and barriers) of health-related behaviors. Demographic variables include age, sex, race, ethnicity, and education, among others. Psychosocial variables include personality, social class, and peer and reference group pressure, among others.
- **Cues to Action:** The health belief model posits that a cue, or trigger, is necessary for prompting engagement in health-promoting behaviors. Cues to action can be internal or external. This is the stimulus needed to trigger the decision-making

process to accept a recommended health action. Physiological cues (e.g., pain, symptoms) are an example of internal cues to action. External cues include events or information from close others, the media, or health care providers promoting engagement in health-related behaviours.

- **Self-Efficacy:** Self-efficacy refers to an individual's perception of his or her competence to successfully perform a behaviour. This refers to the level of a person's confidence in his or her ability to successfully perform a behaviour. Self-efficacy was added to the health belief model in an attempt to better explain individual differences in health behaviors.

2.3.4 Relevance of Health Belief Model to Study on Herb Use

From the assumptions of the Health Belief Model, it showed that herb users are equally confronted by the basic constructs of the model. Under Perceived Susceptibility, the herb user is believed to have adequate knowledge and opinion on the benefits as well as side effects of the herbs to be taken and personalizes risk based on his behavior. On Perceived Severity, the herb user considers his opinion of how serious a condition and its consequences are. This equally involves specifying the consequences of the risk and the conditions associated with herbal medicine. On Perceived Barriers, the herb user identifies and reduces barriers through reassurance, incentives and assistance. This is followed by Cue to Action in which the user provides how-to information and promotes awareness and reminders. Self-efficacy provides training, guidance in the use of herbal medicine.

2.3.5 Justification for Choice of Knowledge-Gap Theory and Health Belief Model

The application of both knowledge-gap theory and Health Belief Model are appropriate because both theories are aptly targeted to a segmented audience whose demographics falls within two streams of activities: (a) there is a case of whether accessibility to health information determines the level of use of herbal medicine. The choice of type of herbal product is determined by the level of information on such herbal product. Herbal users that use foreign herbal food supplements are defined by their socio-economic means as well as exposure to available information, (b) those herbal users who use locally prepared

herbal medicine may be limited by their socio-economic means as well as inaccessibility to health information. This is what the knowledge-gap theory explored in the theoretical framework to state that the gap among audience members is due to their socioeconomic means and exposure to information.

On the other hand, the justification for the choice of health belief model was that the literature and empirical study reveal that in the Southeast (as well in other parts of Nigeria), there is a correlation between certain health beliefs and efficacy of herbal drugs. Though a model construct, its application in this study has identified following constructs: (a) perceived severity, (b) perceived susceptibility, (c) perceived benefits, (d) perceived barriers, (e) modifying variables, (f) cues to action and (g) self-efficacy.

Summarily, whereas the knowledge-gap theory focuses on the effect of exposure to information in determining the differences in reaction to media messages on the use of herbs and its attendant effects, health belief model adopts a psychological approach to understanding the correlation between attitudes and beliefs in relation to the use of herbs, Baran and Davis (2006,p.314) state that ‘knowledge gap theory identifies potentially troublesome gaps between groups and presumes a reciprocity and audience activity in communication.’ Applied in this study, it is apparent that herb use is somewhat tied to amount of information which herbal manufacturers indicate as side effects and where such information is lacking, the herb user is helpless.

2.4 SUMMARY OF LITERATURE

From the reviewed literature, it was observed that the use of herbal medicinal products and supplements has increased tremendous and its scope of acceptance among the populace continue to grow widely. The studies of Ekor (2014); Canter and Ernst (2004) and Cohen and Ernst (2010) agree the most common reasons for using herbal drugs are that it is more effective, more closely corresponds to the patient’s ideology, allays concerns about the adverse effects of chemical (synthetic) medicines, satisfies a desire for more personalized healthcare and allows greater public access to health information. However, the studies of Oreagba, Oshikoya and Amachree (2011) found out that despite

the widespread of herbal drugs globally and their reported benefits, they are not completely harmless. The discriminate, irresponsible or non-regulated use of several herbal medicines may put the health of their users at risk of toxicity. Another aspect of the review hinged on the discussing the correlation between available health information and herbal drug use in Southeast Nigeria. The review identified different sources of information on herbal drugs such as radio, television, newspapers, magazines, Internet, local advertising etc.

The theoretical framework hinged on the health belief model and knowledge-gap theory. The health belief model provides for the likelihood that a person will follow a preventive behaviour which is influenced by their subjective weighing of the costs and benefits of the action. It is spelled out in the following constructs that represent the perceived threat and net benefits: (a) perceived susceptibility which defines an individual's assessment of his or her chances of getting a disease, (b) perceived benefits which define an individual's conclusion as to whether the new behaviour is better than what he or she is already doing, (c) perceived barriers in which an individual's opinion as to what will stop him or her from adopting the new behaviour, (d) perceived seriousness in which an individual's judgment as to the severity of the disease, (e) modifying variables in which an individual's personal factors that affect whether the new behaviour is adopted, (f) cues to action in which those factors that will start a person on the way to changing behaviour and (g) self-efficacy which involves personal belief in one's own ability to do something.

On the other hand, knowledge-gap theory refers to the structured differences in information levels and groups in the society, often categorized into better-informed and less-informed segments of a society. The application of this to the study on herbal drugs stems from the fact that there is a correlation between access to information and level of awareness of side effects of medicinal herbs. This means that socioeconomic means can be a determining factor in the use of herbal drug and accessibility to health information on herbal drugs.

2.5 RESEARCH HYPOTHESES

The following null hypotheses were formulated to strengthen the study:

- H₁: There is significant use of herbal drugs in Southeast Nigeria.
- H₀: There is no significant use of herbal drugs in Southeast Nigeria.
- H₂: Users of herbal drug are not greatly exposed to health information on herbal drugs.
- H₀: Users of herbal drug are greatly exposed to health information on herbal drugs.
- H₃: Health beliefs influence users' attitudes to herbal drugs.
- H₀: Health beliefs do not influence users' attitudes to herbal drugs.
- H₄: There is correlation between available health information and users' health beliefs in influencing herbal drug use in Southeast Nigeria
- H₀: There is no correlation between available health information and users' health beliefs in influencing herbal drug use in Southeast Nigeria

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter explained the research methods used to generate the data in this study. It discussed the design under the following: research method, study population, sample and sampling procedure, data collection instrument, measurable variables and test of validity and reliability of instrument.

3.1 Research Method

The study employed a mixed method in which two research methods: survey and in-depth interview methods of inquiry were used. Whereas survey is a quantitative method, in-depth interview is a qualitative method. The choice of two research methods was justified based on the fact that a study on herbal drug use is targeted at complex groupings of individuals whose demographic attributes differ. Besides, a study on herbal drug use demands both a selection based on the opinion of a sample (survey) and finding answers based on personal interactions (in-depth interview) with respondents.

Survey method is a research method used to find out the understanding of present conditions, attitudes and beliefs as well as predicting the future. Survey research attempts to measure a broad array of characteristics of a population of interest by administering a questionnaire to a sample of members of the population. It explores the relationships between variables. Nwodu (2006) states that survey research method focuses on a representative sample derived from the entire population of study. A researcher, who employs this method therefore, goes into the field and selects samples out of the entire population. This means that what researchers do in this case is to use a particular sampling technique to select a sample from the whole unit of the population, study the sample and by extension, use the outcome from the sample studied to generalize on the entire population. This, therefore, implies that it was cumbersome and unrealistic to study the entire population of study.

On the other hand, in-depth interview allowed the researchers to embark on face-to-face interview with few selected stakeholders in the area of study. Wimmer and Dominick (2011,p.206) point out that in-depth interview method involves inviting a respondent to a field service location or a research office, and sometimes interviews are conducted at a person's place of work or home. According to Dunu (2011), the in-depth interview is used to help bring out hidden meanings from the responses of the respondents, which among other things would explain the ideological orientation of the respondents towards the study. The most important advantage of the in-depth interview is the wealth of details that it provides and the rapport between respondent and interviewer makes it easier to approach certain topics that might be taboo in other approaches. There are two types of in-depth interview: structured and unstructured. In a structured interview, standardized questions are asked in a predetermined order; little freedom is given to interviewers. In the unstructured interview, broad questions are asked that allow interviewers freedom to determine what further questions to ask to obtain the required information. For convenience and easy analysis, the study adopted the structured interview..

3.2 Area of Study

The study on herbs, health information and users' health belief covered the herbal drug users in Southeast Nigeria which comprised the Igbo-speaking States of Abia, Anambra, Ebonyi, Enugu and Imo. The area is characterized by dense population, massive infrastructural development and industrialization. The rationale for the choice of Southeast Nigeria for this study was due to its agrarian nature and the fact that it is an area that is fast-developing in herbal medicine.

Abia State

Abia State (also known as God's Own State) was carved out of the former Imo State on 27 August 1991 with a capital in Umuahia. According to 2006 National Census, the State has a population of 2,833,999 and on May 29, 2015, Okezie Ikpeazu became the ninth Governor of Abia State. The State consists of 17 Local Government Areas. Abia people are of the Igbo ethnic group who predominate much of the Southeastern Nigeria and are

deeply rooted in use of herbs in healing various ailments. The State shares boundaries with Imo State to the west, Cross River State to the east, Akwa Ibom State to the south and Ebonyi and Enugu States to the north. The State boasts of many tertiary institutions and rich cultural artifacts and herbal products for healing various ailments.

Anambra State

Anambra State (also known as Light of the Nation) was carved out of former Anambra State on 27 August 1991 with a capital in Awka. The State is bounded by Delta State to the west, Imo State to the south, Enugu State to the east and Kogi State to the north. According to 2006 National Census, the State has a population of 4,055,048 thus making the State the eighth most populated state in Nigeria. Dr. Willy Obiano is the current Executive Governor of the State. The State consists of 21 Local Government Areas and tertiary institutions. The State is endowed with rich cultural and tourist attractions such as Igboikwu Bronze, Awka Blacksmith, Agulu Lake, Ogbunike Cave, Ogba Hills Ogbunike. Its cultural artifacts include the Ini Eri Aguleri, Afia Olu Festival Nnewi, Otite Festival Ufuma, Igu-Aro festival and a host of other cultural activities in the State. As a result of agrarian nature of the State, greater citizens grow and use herbs for medicine, for instance, the people of Ufuma in Orumba North of the State are renowned in the area of herbal medicine.

Ebonyi State

Ebonyi State (also known as Salt of the Nation) was created on 1 October, 1996 with a capital in Abakakili. Ebonyi is called the Salt of the Nation because of its huge salt deposit at Okposi and Uburu. The State has an estimated population of 1,739,136 and Prof. David Umahi is the current executive State Governor. The State consists of 13 Local Government Areas and tertiary institutions. The State shares common boundaries with Benue to the north, Enugu to the northwest, Abia to the southeast and Cross River to the east. The people are predominantly farmers and traders. As a result, it boasts of fertile farmlands and herbal vegetations.

Enugu State

Enugu State (also known as Coal City State) was created on 27 August, 1991 with a capital in Enugu. According to 2006 National Census, the State has a population of 3,267,837 and Dr Ifeanyi Ugwuanyi is the current executive State Governor. The State consists of 17 Local Government Areas and tertiary institutions. The name ‘Enugu’ was derived from the hilly nature of the State. It is bounded by Abia State to the south, Anambra State to the west, Kogi and Benue States to the north and Ebonyi State to the east. Enugu State is dominated by civil servants as a result of its early contact with Europeans. However, the agrarian nature of interior parts of the State makes the State a case study for the study of herbal medicine.

Imo State

Imo State (also known as Eastern Heartland) was created on 3 February, 1976 with a capital in Owerri. According to 2006 National Census, the State has a population of 3,934,899 and Chief Rochas Okorocha is the current executive State Governor. The State consists of 27 Local Government Areas and tertiary institutions. The State is bounded by Anambra State to the north, Abia State to the east, Delta and Rivers to the west and south respectively. An oil-producing State, it boasts of rich agricultural suitable for growing of herbs and cultural artifacts

3.3 Study Population

Population means the aggregate of all cases, persons, objects, ideas or organizations which possess certain attributes being studied in a research. It refers to the total number of a class, persons, events or objects. In this study, the population comprised of respondents from the five States that make up Southeast Nigeria. The data collated from the States in South East was based on projected 2006 census figure of National Population Commission as follow:

Abia State:	2,845,380
Anambra State:	4,177,828
Ebonyi State:	2,176,947

Enugu State:	3,267,837
Imo State:	3,927,563
TOTAL:	16,395,555

3.4 Sample and Sampling Procedure

Sample is a subset of the members of a population being studied. It is a group of items or cases chosen from a population so that the important attributes of the population are represented in the group. The sample is part of the population from which it is drawn. To this end, a portion of elements will be taken from total population of South East, Nigeria. In determining the sample size, the study applied Cochran (1977) sample size determination:

$$n = \frac{Z^2 pq}{e}$$

Where: n = sample size

Z^2 = standard error of the mean or the abscissa of the normal curve that cuts off an area α at the tails. At 95% confidence level, Z is often set at 1.96.

p = the estimated proportion of an attribute that is present in the population. This is often assumed to be .5, where the 95% confidence level is used.

$$q = 1-p$$

e = desired level of precision, often assumed to be 0.05 in the social sciences where a 95% confidence level is often used.

Therefore,

$$n = \frac{1.96 \times 16,395,555 \times .5 \times 1.5}{16,395,555 \times 0.0025 + 1.96 \times .5 \times 1.5}$$

$$n = \frac{24101465.85}{60253.664625}$$

$$n = 400$$

The study therefore used a sample size of 400 respondents for the study.

On the other hand, the sampling procedure was purposive sampling method in which the elements in the population are chosen because of specific characteristics envisaged to help in realizing our research goals. Purposive sampling was deemed fit because it included respondents, subjects or elements selected for specific characteristics or qualities and eliminated those who fail to meet these criteria. By this, only those who use herbs were selected from the Southeastern States.

In this case, respondents were selected based on those who use herbal drugs, however, for convenience; the distribution was done by proportionate method to reflect the population size of each state so that States with higher population size were assigned more copies of questionnaire based on the ratio of 30 respondents per one million population size (with Anambra State having extra 10 respondents due to population size) thus:

Abia State:	60 respondents
Anambra State:	130 respondents
Ebonyi State:	30 respondents
Enugu State:	90 respondents
Imo State:	90 respondents
TOTAL:	400 respondents

To identify actual users of herbal drugs that make up the 400 respondents, the researchers visited notable *Ogbo-Ogwu Igbo* (traditional medicine) sections of popular markets and motor parks in Southeast where users were easily identified. Using this method, the following *Ogbo-Ogwu Igbo* places and motor parks were visited (a) Anambra State: Onitsha Main Market, Relief Market, Bridge-Head Market, Ose Okwudo Market, Eke Awka, Nkwo Nnewi, Nkwo Okija, Afor Ufuma, Nkwo Igboukwu, Ori Utuh, Aba Motor Park along Onitsha-Owerri Road, Lagos Park Onitsha, Nnewi Eastern Mass-Enugu Bus Terminals and Uli Centre area, (b) Abia State: Ariaria International Market, Ekoha Market, Eziukwu Market, Ahia Ohuru Market, Aba Main Bus Terminals, (c) Ebonyi State: Abakaliki Main Market, Kpirikpi Market, Abakpa Market, Nwida Market Izzi,

Igboji Market Ikwo, Nkwo Market Ohaukwu, Abakaliki park along Spera in Deo Roundabout and Peace and Onitsha South Bus Terminals, (d) Enugu State: Ogbete Main Market, Artisan Market, Kenyetta Market, Relief Market, Mayor Market, Old Park Road and Mass Transit Bus Terminals opposite Holy Ghost Cathedral Enugu and (e) Imo State: Okigwe Market, Eke Onuwa, Ekeukwu Owerri Market and the popular Alugo Motor Park and Hausa Quarters beside Alugo Motor Park.

Apart from these popular markets and motor parks, other users of herbal drugs that made up the respondents were drawn from civil servants from various State Secretariats, farmers and students living in various urban and rural areas.

3.5 Data Collection Instrument

Questionnaire was the major instrument used for data collection in the study. The questionnaire was constructed to reflect major items of the research questions. It consisted of relevant questions that border on the research questions. In doing the above, the study employed a set of questions that addressed the variables directly related to the research questions and hypotheses. The questionnaire was also divided into segments employing both close-ended options and 5-step Lickert scale. The questionnaire was devoid of ambiguity in content and illiterate respondents were assisted by interpreting the questions for them. For the qualitative approach, the study employed interview schedule that contained relevant questions on the subject bearing in mind the research questions.

3.6 Measurable Variables

This study indicated parameter of measuring the following variables:

What is the level of herbal drug use in Southeast Nigeria

- **Level of herbal drug use in Southeast Nigeria:** This was measured by asking questions that will determine the level of herbal drug in Southeast Nigeria with the intent of knowing whether people of Southeast use herbal drugs and to what extent.

- **Herbal drug users' exposure to health information on herbal drugs:** This was measured by asking respondents to indicate whether they depend on health information for the use of medicinal herbs and to what extent they are exposed to health information (such as the use of mass media or word of mouth) on herbal drug use.
- **Health beliefs influence on users' attitude to herbal drugs:** This was measured by asking questions that measured users' level of awareness of how health beliefs influence use of herbal drugs with its attendant health challenges.
- **Correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria:** This equally was measured by asking the respondents series of questions to ascertain whether there is correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria.

3.7 Validity and Reliability of Research Instrument

Validity is the ability of the instrument to measure what it is set out to measure. In this case, the instrument was subjected to face-validity in which the drafted instrument was vetted by the project supervisor to ensure validity. It involves a close examination of the content of the area of study that the instrument is to appraise. Since the content has various aspects, the researchers also structured the instrument to measure or touch all the aspects of the study. Equally, the instrument was scrutinized by the supervisor and other experts in Mass Communication.

On the other hand, to test for reliability, the instrument was subjected to test of consistency. Reliability of instrument is the consistency with which an instrument measured variables under study and it is reliable if it consistently yielded the same results when repeated measurements of a property are taken of the same entities under the same condition. In this case, the study employed a pretest (pilot study) method of test of reliability of instrument. The pretest method involved distributing 20 copies of the

questionnaire to trial groups and retrieving immediately. Afterward, the returned copies of questionnaire were revalidated to ensure that the instrument is reliable.

In all, the pretest yielded a threefold benefit to the research:

- To test the validity and reliability of the field instrument
- To assess if the items in the instrument are suited to address the measurable variables.
- To use the information generated to evaluate the preliminary research questions.

3.8 Administration of Instrument

Due to the scope of the study that covers five States of Southeast Nigeria, the researcher employed the services of research assistants that assisted the researchers in the distribution of questionnaire to the five States of Southeast Nigeria of Anambra, Abia, Ebonyi, Enugu and Imo States. The researcher and the research assistants gave the respondents a day grace to fill and return the instrument.

3.9 Qualitative Design: In-Depth Interview

Selection of Interviewees

This research design focused on herbal users in Southeast Nigeria. The sample size for this research methodology constituted of selected herbal drugs users and also dealers on herbal drugs as marketers, distributors and traditional herbalists. The instrument for data collection was a set of open-ended questions administered to two persons from each state of Southeast, Nigeria. The selection was based on interviewees who were willing to be interviewed; however, these persons are significant as they ranked among manufacturers and users of herbal drugs (including herbal food supplements). In all, 10 persons drawn from the States understudy were chosen.

3.10 In-Depth Interview Questions

Questions for the in-depth interview to elicit qualitative data for the study were expanded from the underlisted:

- a. The level of use of herbal drugs in Southeast Nigeria.
- b. The extent users of herbal drug are exposed to health information on herbal drugs.
- c. The extent health beliefs influence users' attitude to herbal drugs.
- d. Whether there is the correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria.

3.11 Method of Data Analysis

For easy analysis of the collated data, the study employed the use of frequency table and pie chart in data presentation and analysis. The qualitative analysis employed the descriptive thematic method which involved the transcription of interviews. The research hypotheses formulated were tested using Chi-Square (X^2) to test for correlation among variables.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

4.1 Data Presentation and Analysis

This chapter deals with the presentation and analysis of data. Data analysis was done using percentage tables and pie charts.

4.1.1 Data Presentation for Survey

The study employed a mixed method in which both survey and in-depth methods were used. For the survey, a total of 400 copies of the questionnaire were distributed within the five States of Southeast, Nigeria. The return rate was given thus: in Abia State, 60 copies of the questionnaire were distributed and 56 validly filled copies of questionnaire were retrieved; in Anambra State, 130 copies were distributed and 126 copies were retrieved; in Ebonyi State, 30 copies of the questionnaire were distributed and 27 copies were retrieved; in Enugu State, 90 copies of the questionnaire were distributed and 86 copies were retrieved and in Imo State, 90 copies of the questionnaire were distributed and 85 copies were retrieved. In all, out of 400 copies of the questionnaire distributed in the five States of Southeast, Nigeria, the researchers retrieved 380 valid copies of the questionnaire. The data analysis was done based on the collected 380 valid copies of the questionnaire showing 95% return rate.

Table 1
Description of the Demographic Variables of Respondents

Description	Background Variables	Frequency	Percentage
Gender	Male	247	65%
	Female	133	35%
	Total	380	100%

Age	16 – 20 years	32	8%
	21 – 25 years	44	12%
	26 – 30 years	128	34%
	31 – 35 years	144	38%
	36 – 40 years	24	6%
	41 – above	8	2%
	Total	380	100%
Marital Status	Single	307	81%
	Married	73	19%
	Total	380	100%
Location	Abia State	56	15%
	Anambra State	126	33%
	Ebonyi State	27	7%
	Enugu State	86	23%
	Imo State	85	22%
	Total	380	100%
Place of Residence	Urban	252	66%
	Rural	128	34%
	Total	380	100%
Occupation	Farmers	86	23%
	Traders	242	64%
	Civil servants	36	9%
	Students	16	4%
	Total	380	100%

Table 1 above indicated that there were more male respondents (65%) than female respondents (35%). The above table also indentified that the majority of the respondents in terms of frequency are between 26 – 30 years and 31 – 35 years with a combined percentage of 72%. It shows that majority of the respondents are young people who are

perceived to be active in terms of their accessibility to health information on use of herbal drugs through various media of information. Remarkably, the table indicated a high concentration of respondents in urban places (66%) as against rural places (34%). This showed that most respondents were drawn from cities in the selected five States of Southeast, Nigeria. On the occupation of respondents, the above table showed that majority of the respondents (64%) were traders. The analysis also found that civil servants and students had least scores of 9% and 4% respectively. Based on table analysis, civil servants and students do not use herbal drugs often.

Responses on the Level of Herbal Drug Use in Southeast Nigeria

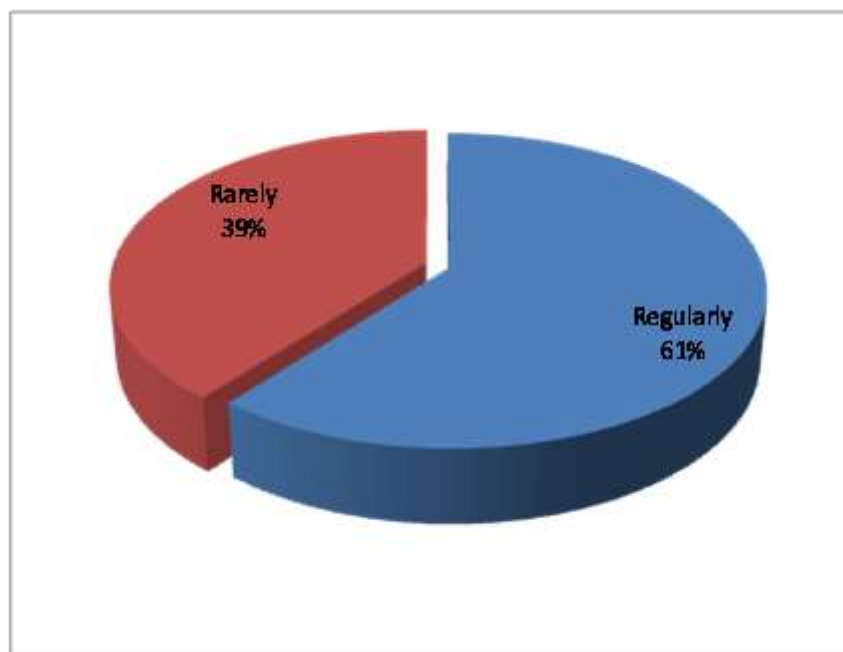
Table 2
Rate of use of herbal drug: Do you use herbal drugs?

Variables	Frequency	Percentage (%)
Yes	380	100
No	0	0
Total	380	100

Source: Field Survey, 2017

Table 1 indicated the rate of use of herbal drugs in the areas understudy. Based on the table, the response was 100 percent in favour of those who use herbal drugs. This is understood because of the use of purposive sampling in which only those who use herbal medicine were identified and sampled.

Figure 1
Respondents' Frequency of Use of Herbal Drugs



The above figure presentation on analysis of respondents' use of herbal drugs in Southeast Nigeria indicated that majority of selected respondents use herbal drugs, however, a slight number of the respondents (39%) rarely use herbal drugs. This gave credence that sampled people in Southeast Nigeria actually use herbal drugs regularly for different purposes.

Table 3
Herbal Users' Addiction to Herbal Drugs

Variables	Frequency	Percentage (%)
Yes	44	12
No	304	80
Don't know	32	8
Total	380	100

Source: Field Survey, 2017

The above table indicated that most herbal users in Southeast Nigeria are not addicted to herbal medicine though the previous Table 2 and Figure 1 affirmed that they take herbal drugs regularly. This is shown in the 304(80%) respondents that indicated that though they take herbal drugs regularly but are not addicted to herbal intake. This may be connected to their level of exposure to health information on the benefits and negative effects of herbal medicine. A total of 44(12%) respondents are addicted to intake of herbal medicine often as self-medication. The no-position stance of 32(8%) respondents clearly showed that some respondents do not know the positive or negative effects of herbal medicine. This may be connected with inaccessibility to health information and geographical location of residence as those in the remotest parts of Southeast may be cut off from information from any mass medium.

Table 4
Respondents' Motivation for the Use of Herbal Drugs

Variable	Frequency	Percentage (%)
Cure for diseases	240	63
As food supplements	94	25
Addiction	46	12
Total	380	100

Source: Field Survey, 2017

Table above indicated that 240(63) respondents use herbal drugs for cure for diseases of different types. This suggests users' perception that herbal medicines have good values in treating many diseases while 94(25%) respondents take herbal drugs as food supplements. Interestingly, the table showed that some respondents with a score of 46(12%) take herbal drugs without any need for either cure for diseases or as food supplements. These respondents are just addicted to using herbal products. A comparison with Table 3 showed that the response in Table 4 on the number of respondents that are addicted to herbal drugs, there is a record of a difference of 2 which is a negligible difference in acceptable responses.

Figure 2
Respondents' Mode of Using Herbal Drugs

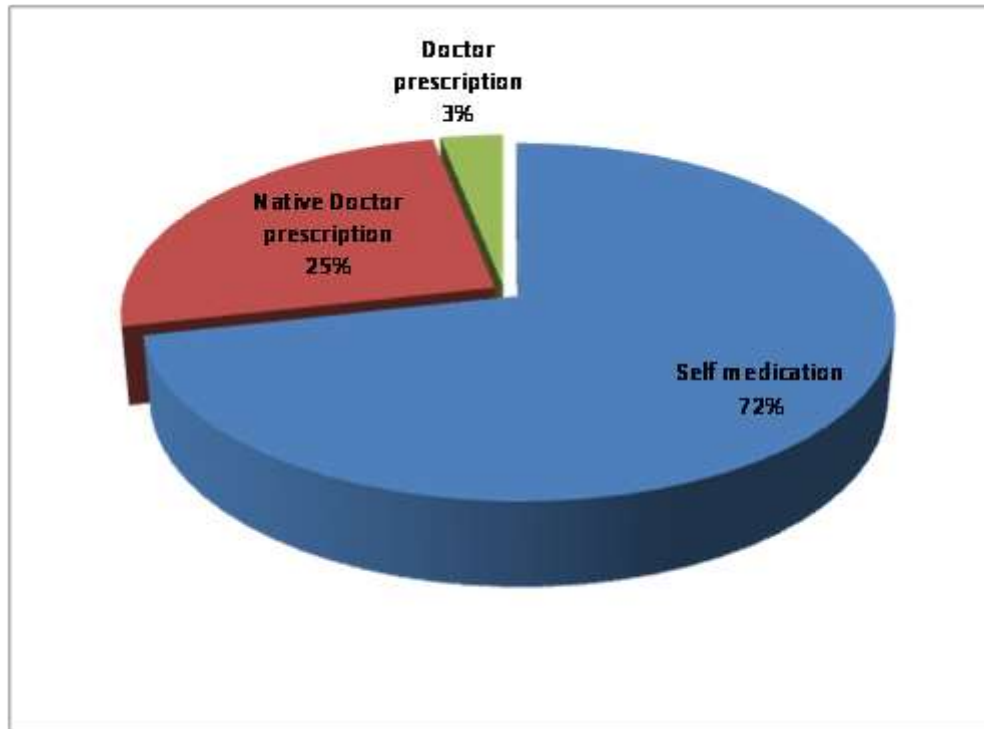
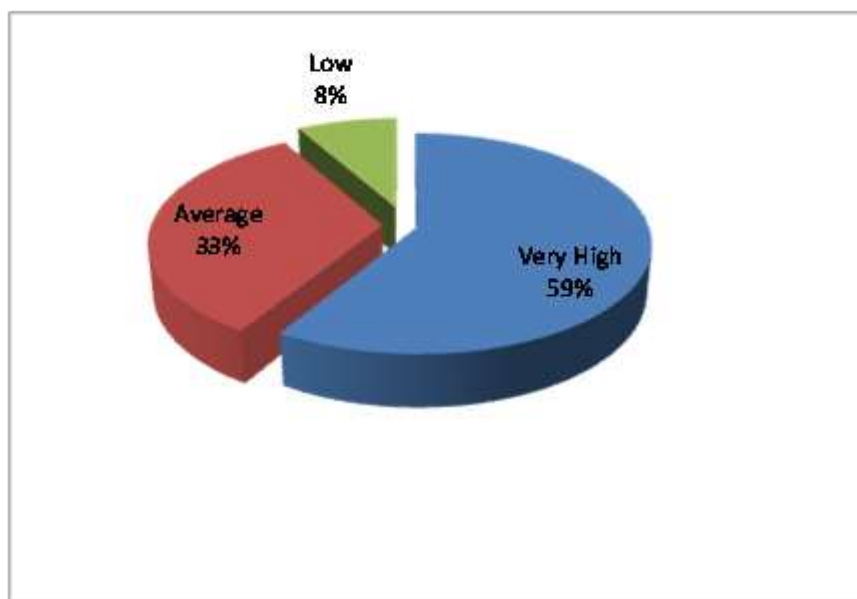


Figure 2 indicated that majority of respondents use herbal drugs indiscriminately on the basis of self-medication in various forms. This shows that most herb users may likely be inclined to drug abuse. Remarkably, the low percent of use of herbal medicine based on doctors' prescription (mostly as food supplement) showed that there still exist problem of integration of use of herbal drugs with orthodox medicine among medical practitioners. It equally indicated a negligible assimilation of herbal products in orthodox medical practice.

The analysis equally indicated that non-medical practitioners equally may influences on the manufacture and sale of herbal drugs. These non-medical practitioners refer to all herbal healers other than orthodox medicine doctors. This could be seen in the responses of 25% of respondents that agreed that their use of herbal drugs were on the prescription by native-medical practitioners.

Figure 3
Respondents' Awareness Level of Herbal Drug Use in Southeast



The above figure showed that there is very high use of herbal drugs in Southeast, Nigeria. The high use of herbal drugs in Southeast Nigeria is due to its fertile agricultural lands and vegetation. The response was collaborated by the finding of Iroegbu (2011) that Igbo healers skillfully deal with all forms of diseases, misfortunes and disabilities presented to them. Each case of illness is studied, understood and cured using appropriate herbal materials.

Table 5
Respondents' Experience of Side Effects of Herbal Drugs

Variable	Frequency	Percentage (%)
Yes	214	56
No	122	32
Don't know	44	12
Total	380	100

Source: Field Survey, 2017

Table 5 showed that more respondents of 214(56%) have indicated that they have experienced some degrees of side effects after taking herbal medicines. This is supported by the finding of Oshikoya, Njokanma, Chukwura and Ojo (2007) that excess use of herbal drug may cause some adverse effects which may be severe or life-threatening such as severe acute renal failure and hepatic failure due to the use of herbal medicine. A reasonable 122(32%) respondents do not experience side effects after taking herbal medicine. This further collaborated the findings of Era (2002) that although there are certain side effects associated with herbal use (as equally applicable to synthetic drugs), the use of herbs for medicinal purposes can be enriching and life-saving when applied within the confines of appropriate preparation procedure and dosage. 44(12%) respondents were neutral in response.

Table 6
Respondents' Extent of Awareness of Side Effects of Herbal Drugs

Variable	Frequency	Percentage (%)
To great extent	212	56
To low extent	140	37
Don't know	28	7
Total	380	100

Source: Field Survey, 2017

From the analysis above, 212 (56%) respondents are greatly aware of side effects of herbal drugs while 140(37%) respondents are not fully aware of the side effects of herbal drugs. A score of 28(7%) respondents are not aware of side effects of herbal drugs at all. The implication is that more respondents are exposed to information on the constituent and indications of herbal drugs they use.

Figure 4
Respondents' Knowledge of Problems Associated with Herbal Use

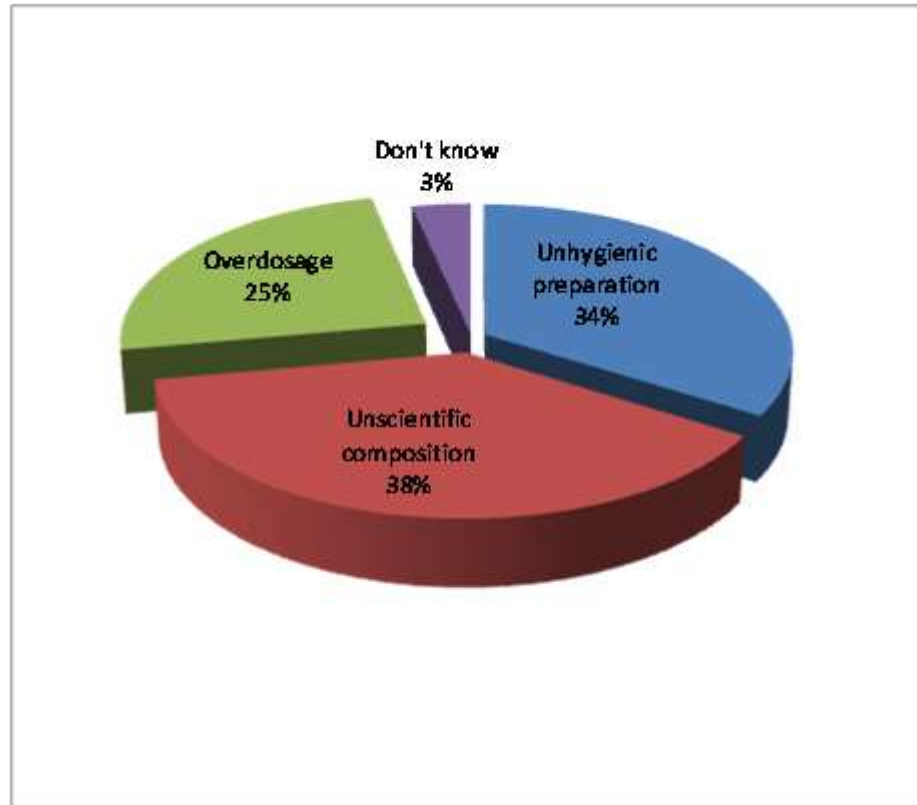


Figure 4 indicated that (38%) of respondents that use herbal drug identified unscientific composition of herbal drugs as the major problem associated with the use of herbal drugs. Another problem was unhygienic preparation of most herbal drugs as some herbs are prepared in dirty environments amidst toxic mixtures. There was also the problem of over-dosage as most herbal drugs lack appropriate composition and measurement. These findings support Talalay (2001) and Elvin-Lewis (2001) that a number of herbs are thought to cause adverse effects; unscientific composition, unhygienic preparation, adulteration, inappropriate formulation, or lack of understanding of plant and drug interactions have led to adverse reactions that are sometimes life threatening or lethal.

Table 7
Respondents' Experiences of Side Effects of Herbal Drugs

Variable	Frequency	Percentage (%)
Body reactions	26	7
Abdominal pains	184	48
Vomiting	102	27
Organ failure	68	18
Total	380	100

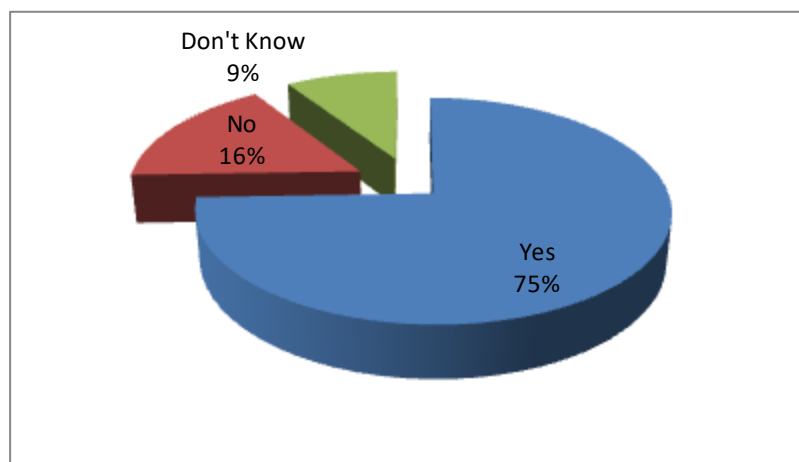
Source: Field Survey, 2017

Table 7 indicated respondents' experience of self effects of herbal drugs and found out that 26(7%) complained of body reactions of different forms; 184(48%) respondents identified abdominal pains; 102(27%) respondents identified vomiting as side effect while 68(18%) identified organ failure as major side effect. This supports the studies of Oshikoya, Njokanma, Chukwura & Ojo (2007) which observed that excess use of herbal drug may cause some adverse effects which may be severe or life threatening such as severe acute renal failure and hepatic failure due to the use of herbal medicine.

Responses on Users' Exposure to Health Information on Herbal Drugs

Figure 5

Respondents' Exposure to Health Information on Herbal Drugs



The figure above indicated that majority of 283(75%) respondents are exposed to health information on herbal drugs through various media of information, however, it equally showed that 16% percent of respondents do not even expose themselves to health information at all while 9% respondents are undecided. This suggests that there is significant exposure to health information on herbal drug use among the selected respondents.

Table 8
Respondents' Extent of Exposure to Health Information on Herbal Drugs

Variable	Frequency	Percentage (%)
To great extent	246	65
Average	80	21
To low extent	50	13
Don't know	4	1
Total	380	100

Source: Field Survey, 2017

From the presented data in Table 8, there was a high response in favour of those who are greatly exposed to health information on herbal drugs through different sources of information. Surprisingly, a meagre 4(1%) respondents do not exposure themselves to health information on herbal medicine. Invariably, these respondents are likely to take herbal drugs without knowing the effects of such medicine. The analysis indicated good response in favour of those that expose themselves to health information on herbal drugs with a combined 99 percentage spread across three degrees of exposure (great extent, average and low extent).

Figure 6
Respondents' Sources of Health Information on Herbal Drugs

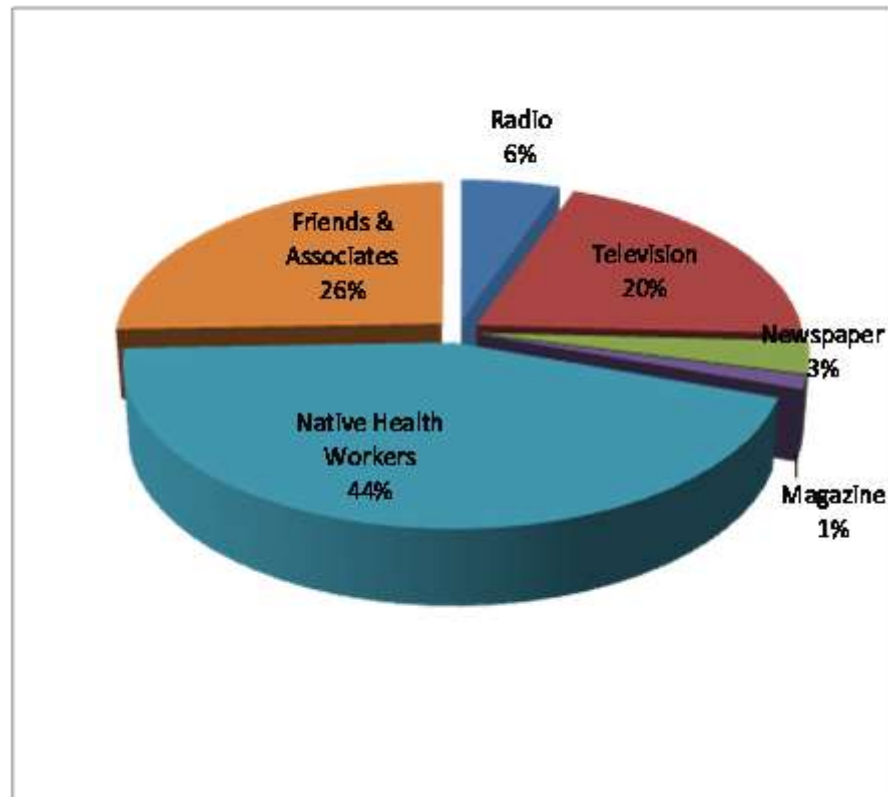


Figure 6 indicated that majority of respondents get health information on herbal drugs from native health workers and friends and associated with a combined percent of 70%. These groups exert tremendous influence on users' preference to use of herbal drugs because due to proximity, persuasive means of information and ability to convince users on the efficacy of herbal drugs. This may be due to their socioeconomic attributes and non-integration of herbal drug use by the mainstream media of information. Among the mainstream media, magazine (1%) ranked lowest which account for its selectivity of audience and loyal readership.

Table 9
Respondents' Rate of Exposure to Health Information

Variable	Frequency	Percentage (%)
Regularly	202	53
Rarely	144	38
Don't know	34	9
Total	380	100

Source: Field Survey, 2017

Table 9 showed that irrespective of medium of communication, 202(53%) respondents receive information on herbal drugs regularly; 144(38%) respondents rarely receive information on herbal drugs while 34 (9%) respondents do not receive at all. The implication is that there is even dissemination of health information on herbal product. This means that a combined score of 91% of respondents receive information on herbal drug which invariably means that there is adequate dissemination of information on herbal drugs in Southeast, Nigeria. It was equally observed that there was a difference in the responses of 'Don't know' in Table 8 on extent of exposure to health information and Table 9 'Don't know' response which indicated that perhaps, some of the respondents may not have filled the questionnaire properly because since 5 respondents did not know the extent of exposure to health information on Table 8, it then implied that same responses would have indicated same response in Table 9. However, the overall analysis indicated favourable responses towards exposure to health information on herbal medicine thereby supporting the findings of Adum (2011) and Batta (2013) that information forms the fulcrum of the campaign on effective use of herbal medicine.

Table 10
Respondents' Choice of Information Sources that Influences You

Variable	Frequency	Percentage (%)
Television	40	11
Radio	48	13
Newspaper	28	7
Magazine	4	1
Personal Selling	260	68
Total	380	100

Source: Field Survey, 2017

Table 10 showed that the major source of information that influenced the buying behaviour of the respondents was through personal selling in which 260 (68%) respondents affirmed that they were influenced through personal contact with manufacturers or sellers of herbal medicine. Combined 32% responses were spread across other media of communication such as television, radio, newspaper and magazine. The implication is that most respondents studied are not high degree users of modern media of communication. They tend to depend on different forms of personal selling and promotions to buy and use herbal products.

Table 11
Respondents' Form of Information on Herbal Drugs

Variable	Frequency	Percentage (%)
News story	80	21
Editorials	4	1
Print adverts	48	13
Personal conversations	248	65
Total	380	100

Source: Field Survey, 2017

Table 11 indicated that most respondents 65% get their information by engaging in personal conversations with other herbal drug users. Although a combined 35% depend on new story, editorials and print adverts, it still showed that most respondents do not get their information from the conventional mass media. They mostly depend on others to know about herbal drugs.

Table 12
Respondents' Knowledge of National Agency for Food and Drug Administration and Control (NAFDAC)

Variable	Frequency	Percentage (%)
Yes	256	67
No	124	33
Total	380	100

Source: Field Survey, 2017

Table 12 indicated majority of the respondents of 67% know about the regulatory agency, NAFDAC that regulates herbal products and related products. Other users do not know NAFDAC. The implication is that the respondents have relative knowledge of the roles of NAFDAC in ensuring quality standard, safety and efficacy of herbal products.

Table 13
Respondents' Assessment of National Agency for Food and Drug Administration and Control (NAFDAC) in Regulating Herbal Drugs

Variable	Frequency	Percentage (%)
Effective	208	55
Ineffective	110	29
Don't know	62	16
Total	380	100

Source: Field Survey, 2017

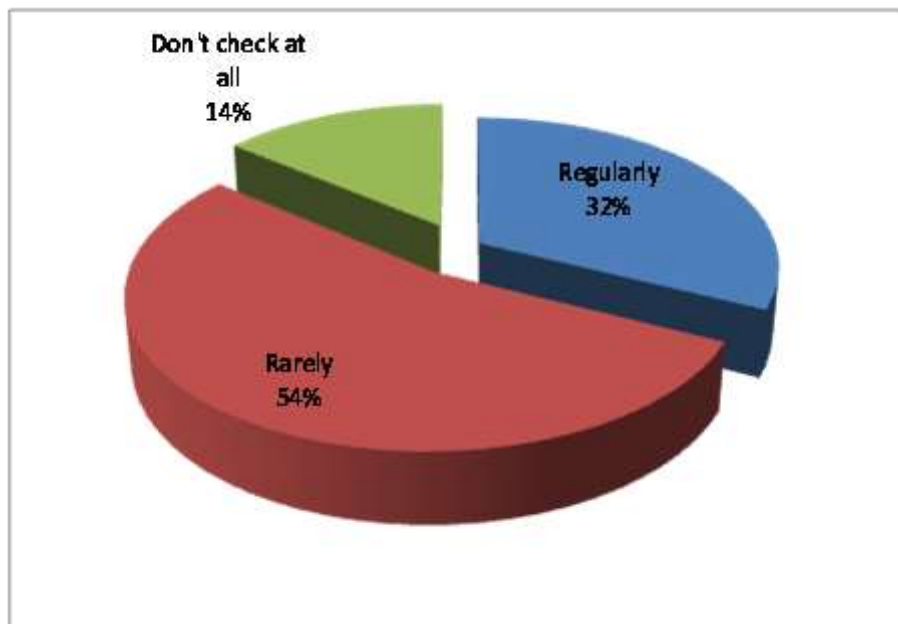
On the assessment of the effective of NAFDAC as a regulatory agency of herbal medicine and related products, majority of respondents (55%) affirmed that NAFDAC has been very effective through different measures of ensuring strictly regulation of herbal medicine and related products. Combined percentage 45% stated that the agency has not been effective while others did not take a position. The overall assessment suggests that NAFDAC is really effective in discharging its statutory responsibilities in health related matters.

Table 14
Respondents' Check of NAFDAC Registration Number of Herbal Drugs

Variable	Frequency	Percentage (%)
Yes	184	48
No	118	31
Don't know	78	21
Total	380	100

Source: Field Survey, 2017

Table 14 showed the responses of respondents on whether herbal users check for NAFDAC registration number of herbal drugs before use. In response, 184(48%) respondents agreed that they check for NAFDAC registration number before buying or using herbal drugs; 118(21%) do not check for NAFDAC registration number before buying or using herbal products and the responses of 78(21%) respondents showed that they do not even know what is NAFDAC and its function as a regulatory agency for foods and drugs in Nigeria. From the analysis above, it is concluded that a reasonable number of herbal drugs users in Southeast do not care about whether the herbal drugs are approved by NAFDAC or not.

Figure 7**Respondents' Rate of Check for NAFDAC Registration Number before Use of Herbal Drugs**

On the rate at which respondents check for NAFDAC Registration Number before use of herbal medicines, Figure 7 shows that majority (54%) of the respondents don't check for NAFDAC Number before purchase and use of herbal products. Arguably, the inability to check for NAFDAC Registration Number before use of herbal products could be that (a) most herbal drugs used in the region understudy are locally processed and locally bottled thus may not be regarded as a properly purified herbal products as in the case of food supplements, (b) the location of production is usually in the remotest parts of the region often outside the area of routine checks by NAFDAC officials and (c) major method of marketing is usually through personal selling in which the manufacturer promotes the herbs in buses, motor parks or marketplaces where NAFDAC officials hardly operate.

Responses on Health Beliefs Influence on Users' Attitude to Herbal Drugs

Figure 8
Correlations between Health Belief and Use of Herbal Drugs

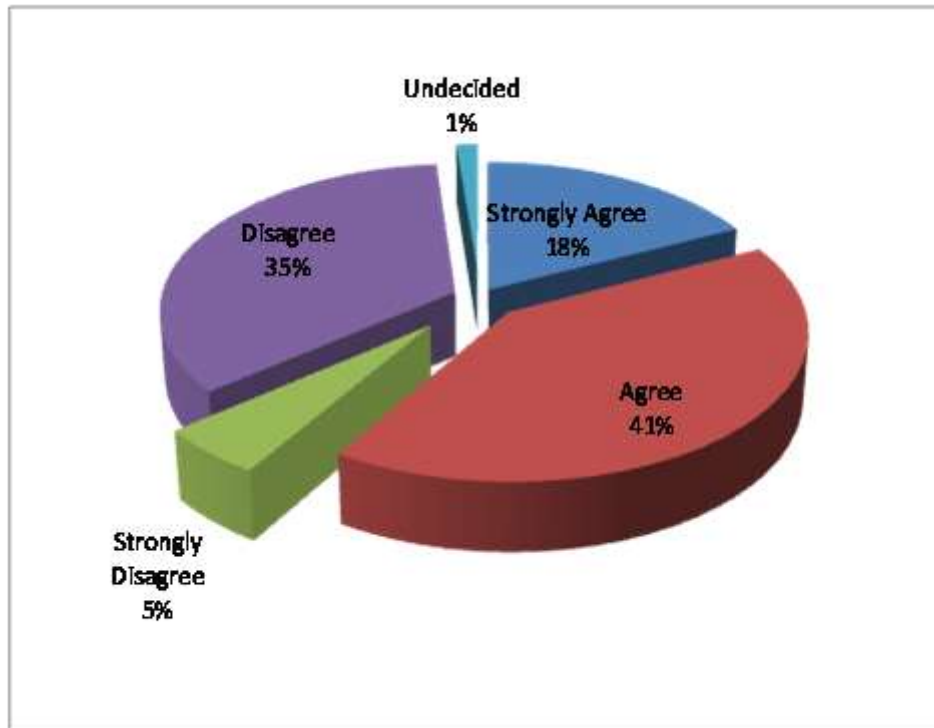


Figure 8 indicated that 41% of respondents agreed that there is correlation between health belief and use of herbal drugs. This accounts for the use of native health workers and friends and associates as major sources of information on herbal drugs as in Fig. 6. These sources use persuasion to convince herbal users on the efficacy of herbal products. Similarly, 35% of the respondents disagreed on the grounds that the efficacy of herbal drugs is guaranteed without any correlation with users' belief health. In this case, the users' health belief does not make herbal drugs efficacious. By implication, the slight marginal difference between responses (Agree - 41%) and (Disagree - 35%) on correlation between health belief and efficacy of herbal drugs points to socio-cultural background as a factor in determining the presence of correlations.

Table 15
Respondents' Preference of Herbal Drugs to Orthodox Medicine based on Efficacy
Claims of Herbal Drugs

Variable	Frequency	Percentage (%)
Strongly agree	42	11
Agree	122	32
Strongly disagree	46	12
Disagree	132	35
Undecided	38	10
Total	380	100

Source: Field Survey, 2017

Table 15 showed respondents' response on preference of herbal drugs to orthodox based on efficacy claims and 132(35%) disagreed that herbal drugs are more efficacious than orthodox medicine; 122(32%) respondents stated that herbal drugs are more efficacy. Though the response tilted in favour of those who disagreed, it suggests that people still take herbal drugs because of the belief that it is derived from nature while orthodox medicine is easily adulterated. This is supported by the findings of Bandaranyake (2006) that the increasing use of herbs is attributed to several factors such as (a) various claims on the efficacy or effectiveness of plant medicines, (b) preference of consumers for natural therapies and a greater interest in alternative medicines and (c) dissatisfaction with the results from orthodox pharmaceuticals and the belief that herbal medicines might be effective in the treatment of certain diseases where conventional therapies and medicines have proven to be ineffective or inadequate.

Figure 9

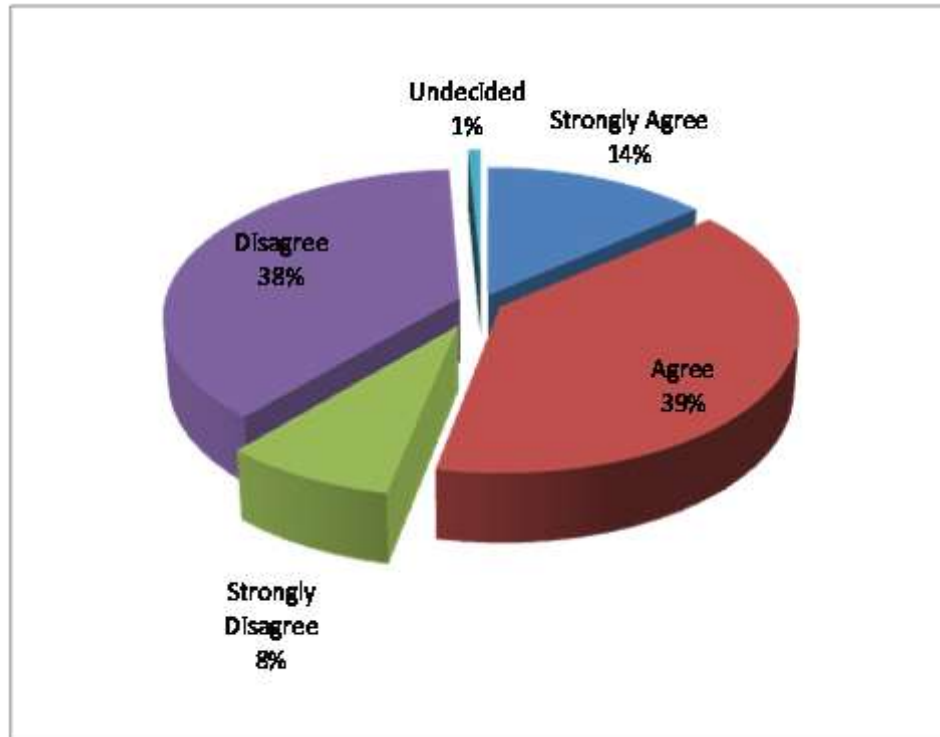
Respondents' Beliefs on Efficacy Based on Cultural/Spiritual Beliefs

Figure 9 indicated a marginal difference of 1% between the Agree-Disagree responses on whether cultural and religious beliefs boost efficacy of herbal drugs. Respondents that agreed that cultural and religious beliefs boost efficacy of herbal drugs hinged on the use of incantations and other unorthodox means to enhance potency of herbal drugs. Here, herbal drugs are seen to be effective when the user attaches some beliefs to its use. On the other hand, respondents that disagreed stated that there is no correlation between users' belief and efficacy of herbal drugs and held that efficacy of herbal drugs is based on its natural medicinal values rather than a user's cultural or religious belief.

Table 16
Respondents' Belief on Efficacy of Herbal Drug Because They Are Derived From Nature

Variable	Frequency	Percentage (%)
Strongly Agree	154	41
Agree	88	23
Strongly Disagree	22	6
Disagree	104	27
Undecided	12	3
Total	380	100

Source: Field Survey, 2017

On respondents' belief on the efficacy of herbal drugs because of natural source materials, Table 16 indicated a combined majority (64% for Strongly Agree – Agree responses) affirmation that many herb users do so because its constituent materials are derived from nature unlike the chemicalised drugs. This supports the finding of World Health Organisation (2004) and Zhou., Ouedraogo., Qu and Duez (2013) that the quality of source materials used in the production of herbal medicines determines to a large extent the safety and efficacy of these herbal remedies.

Table 17
Respondents' Beliefs on Efficacy Based on Incantations

Variable	Frequency	Percentage (%)
Strongly Agree	82	22
Agree	14	4
Strongly Disagree	180	47
Disagree	104	27
Undecided	-	-
Total	380	100

Source: Field Survey, 2017

Responses on Table 17 indicated that a combined majority of responses (74% Strongly Disagree – Disagree) that efficacy of herbal drugs has nothing to do with incantation instead herbs derived their efficacy from its natural extracts and proper preparation and administration. However, the meager response of combined 26% of (Strongly Agree – Agree) responses insisted on the involvement of incantations as part of efficacy claims. The response of these latter respondents is supported by the findings of Shehu and Sheshi (2007) and Onwuanibe (1979) on the involvement of fetish ceremonies in the preparation and use of herbal medicine. By implication, the data analysis identified two-way discourse which argued that based on majority responses, the use of incantation does not add to efficacy of herbal medicine. On the other continuum, the study does not rule out the involvement of incantations in the preparation and administration of herbal medicine especially locally-processed medicinal herbs.

Table 18

Respondents' Beliefs on Potency of Herbal Drug Based on Herbal Administrator

Variable	Frequency	Percentage (%)
Strongly Agree	54	14
Agree	12	3
Strongly Disagree	212	56
Disagree	100	26
Undecided	2	1
Total	380	100

Source: Field Survey, 2017

Table 18 indicated that 80% of the respondents disagreed that potency of herbal drugs is not based on who administered. This implies that anybody can apply or use medicinal herbs because its potency is derived from its natural constituents.

Responses on Correlation between Available Health Information and User Health Beliefs in Influencing Herbal Drug Use in Southeast Nigeria

Table 19

Correlation between Available Health Information and User Health Beliefs in Influencing Herbal Drug Use in Southeast Nigeria

Variable	Frequency	Percentage (%)
Strongly Agree	200	53
Agree	80	21
Strongly Disagree	64	17
Disagree	28	7
Undecided	8	2
Total	380	100

Source: Field Survey, 2017

With a combined 74% (Strongly Agree-Agree) responses, the analysis indicated that there is correlation between available health information and user' health beliefs in influencing herbal drug use in Southeast Nigeria. By implication, it showed that the major determinant on health beliefs of herbal users in Southeast is tied to the amount and source of information on herbal use.

Table 20

Lack of Adequate Information leads to Predominance of Unverifiable Claims and Misconceptions about Herbal Drugs

Variable	Frequency	Percentage (%)
Strongly Agree	122	32
Agree	160	42
Strongly Disagree	42	11
Disagree	50	13
Undecided	6	2
Total	380	100

Source: Field Survey, 2017

In Table 20 analysis, a combined 282(74%) respondents agreed that lack of adequate information leads to predominance of unverifiable claims and misconceptions about herbal drugs. This is supported by Batta (2013) that the problems of herbal medicine in Nigeria have been the reluctance of herbalists to divulge their medicinal secrets. Many renowned herbal doctors have had to die with their knowledge of medicinal plants and their uses in the treatment of diseases. In this respect, there should be adequate information flow between the herbal practitioner and his clients in order to eliminate the risk associated with inaccessibility to information. On the other hand, combined 92(24%) disagreed.

Table 21

Respondents' Responses on whether lack of Adequate Information Inhibit Effective Use of Herbal Drug in Southeast

Variable	Frequency	Percentage (%)
Strongly agree	52	14
Agree	142	37
Strongly disagree	42	11
Disagree	120	32
Undecided	24	6
Total	380	100

Source: Field Survey, 2017

Table above showed that lack of adequate information inhibit use of herbal drugs in Southeast with a combined score of 194(51%) respondents that 'strongly agreed/agreed'. Other respondents strongly disagreed/disagreed. The implication is that without adequate health information, there is a possibility of drug abuse and other health problems associated with the use of herbal drugs.

Figure 10

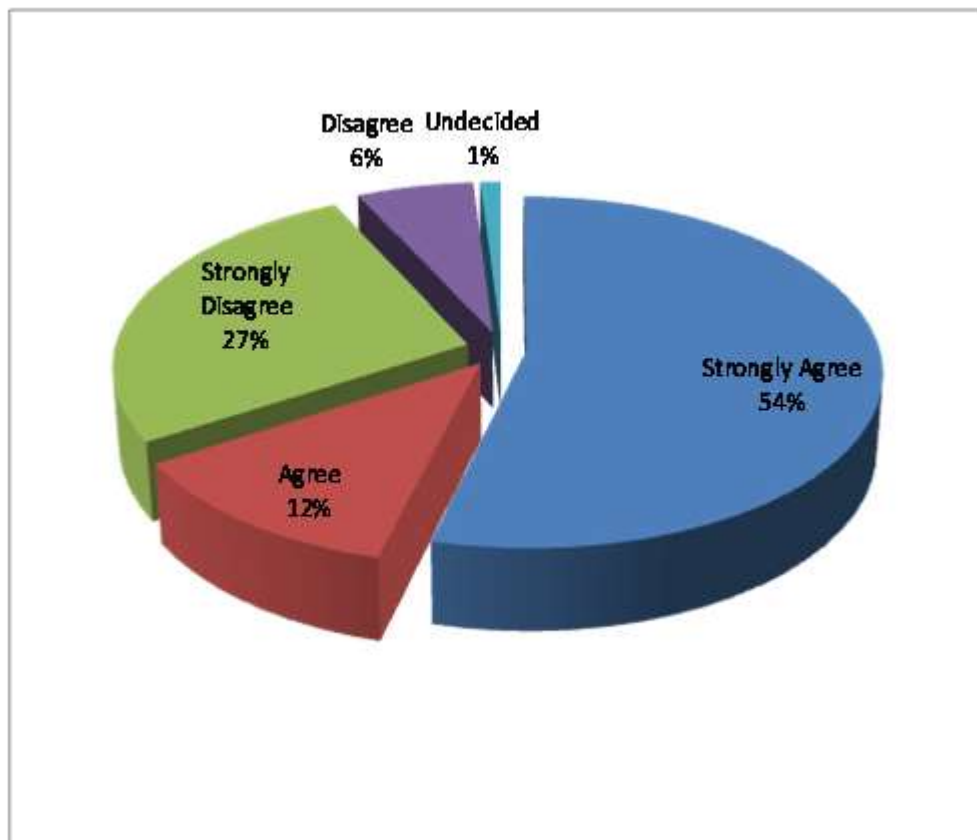
Respondents' Responses on Inadequate Information vis-à-vis Efficacy Claims

Figure 10 showed that majority of respondents (54%) strongly agreed that lack of adequate information in Southeast has led to the predominance of unverifiable claims, unsubstantiated efficacy claims and misconceptions about herbal drugs. In this case, use of herbal drugs in Southeast is inhibited by lack of adequate on effective use of medicinal herbs vis-à-vis efficacy claims. A combined percent of 33% agreed (strongly disagreed and disagreed) on the grounds that lack of inadequate information does not affect the efficacy of herbal drugs.

4.2 Test of Hypotheses

The statistical tool – Chi-square was used for test of hypothesis. The justification was that the study was aimed at determining the correlations between available health information and use of herbal drugs in Southeast Nigeria. The hypotheses formulated for this study were presented by the formula below:

The formula for Chi-square here is:

$$= \frac{\sum oi - ei}{ei}$$

Where \sum is summation

oi – observed frequency

ei – expected frequency

Degree of freedom at 0.05 significance level

Hypothesis I

H₁: There is significant level of herbal drug use in Southeast Nigeria.

H₀: There is no significant level of herbal drug use in Southeast Nigeria.

Using the contingency tables 2 - 6

2	3	4	5	6	Total	ei	oi - ei	(oi-ei) ²	<u>(oi-ei)</u>	
						oi				
										ei
380	44	240	214	212	1090	218	872	760384	3488	
-	304	94	122	140	660	132	528	278784	528	
-	32	46	44	28	150	30	120	14400	480	
380	380	380	380	380	1900				4,496	

Calculated value = 4,496

Level of significance = 0.05

Degree of freedom = (r - 1) (c - 1) = (3 - 1) (5 - 1) = 2 x 4 = 8

Table value at 0.05 of 8 Degree of Freedom = 15.51

Decision Rule: Since the calculated table 4,496 is higher than the table value 15.51, the null hypothesis is rejected. In this case, we accepted the alternate hypothesis which states that there is significant level of herbal drug use in Southeast Nigeria.

Hypothesis II

H₂: Users of herbal drug are not greatly exposed to health information on herbal drugs.

H₀: Users of herbal drug are greatly exposed to health information on herbal drugs.

Using the contingency tables 8 - 14

8	9	10	11	12	13	14	Total	ei	oi - ei	(oi-ei) ²	<u>(oi-ei)</u> ei		
							Oi						
													ei
246	202	40	80	256	208	184	1216	174	1042	1085764	6240		
80	144	48	4	124	110	118	628	90	538	289444	3216		
50	34	28	48	-	62	78	300	43	257	90000	2093		
4	-	4	248	-	-	-	256	37	219	47961	1296		
-	-	260	-	-	-	-	260	37	223	49729	1344		
380	380	380	380	380	380	380	2660				14,189		

Calculated value = 14,189

Level of significance = 0.05

Degree of freedom = $(r - 1)(c - 1) = (5 - 1)(7 - 1) = 4 \times 6 = 24$

Table value at 0.05 of 24 Degree of Freedom = 36.42

Decision Rule: Since the calculated table 14,189 is higher than the table value 36.42, the null hypothesis is rejected. In this case, we accepted the alternate hypothesis which states that users of herbal drug are greatly exposed to health information on herbal drugs.

Hypothesis III

H₃: Health beliefs influence users' attitudes to herbal drugs.

H₀: Health beliefs do not influence users' attitudes to herbal drugs.

Using the contingency tables 15 - 18

15	16	17	18	Total	ei	oi - ei	(oi-ei) ²	<u>(oi-ei)</u>
				oi				ei
42	154	82	54	332	83	249	62001	747
122	88	14	12	236	59	177	31329	531
46	22	180	212	460	115	345	119025	1035
132	104	104	100	440	110	330	108900	990
38	12	-	2	52	13	39	1521	117
380	380	380	380	1520				3,420

Calculated value = 3,420

Level of significance = 0.05

Degree of freedom = $(r - 1)(c - 1) = (5 - 1)(4 - 1) = 4 \times 3 = 12$

Table value at 0.05 of 12 Degree of Freedom = 21.03

Decision Rule: Since the calculated table 3,420 is higher than the table value 21.03, the null hypothesis is rejected. In this case, we accepted the alternate hypothesis which states that health beliefs influence users' attitudes to herbal drugs.

Hypothesis IV

H₄: There is correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria

H₀: There is no correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria

Using the contingency tables 19 - 21

19	20	21	Total oi	ei	oi – ei	(oi-ei) ²	<u>(oi-ei)</u> ei
200	122	52	374	125	249	62001	496
80	160	142	382	127	255	65025	512
64	42	42	148	49	99	9801	200
28	50	120	198	65	133	17689	272
8	6	24	38	13	25	625	48
380	380	380	1140				1,528

Calculated value = 1,528

Level of significance = 0.05

Degree of freedom = $(r - 1)(c - 1) = (5 - 1)(3 - 1) = 4 \times 2 = 8$

Table value at 0.05 of 8 Degree of Freedom = 15.51

Decision Rule: Since the calculated table 1,528 is higher than the table value 15.51, the null hypothesis is rejected. In this case, we accepted the alternate hypothesis which states there is correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria.

4.1.2 Data Presentation for In-Depth Interview

The in-depth interview was carried out in the five States of Abia, Anambra, Ebonyi, Enugu and Imo State among herbal users in cities and rural areas. The 10 selected persons are differentiated based on their socioeconomic and cultural backgrounds. The selected persons comprised of people of different professions and local makers of herbs what is popularly known as native doctors whose craft is preparation and administration of herbal drugs. The selected persons were asked same questions and analysed below:

Research Question one measured the level of herbal drug use in Southeast Nigeria. To achieve this, the interviewees were asked four questions. On the question on frequency of use of herbal drugs, the study discovered that all the respondents use herbal products either as drugs or food supplements. However, further probe revealed that preferences to type of herbal products were as a result of fear of adulterated orthodox medicines as indicated by Interviewee D. Other interviewees made preferences to the use of herbal drugs on the basis of composition (see excerpt of Interviewees C and E) and economic implications (see excerpt of Interviewee H).

INTERVIEWEE C: I use herbal drugs oooooo! Just that I don't like it due to its composition which I always see as being too acidic for my liking however; I manage to take herbal drugs only when I am sick.

INTERVIEWEE D: I prepare and take herbal drugs regularly. I don't trust orthodox medicine again so I prepare my own herbs and take them as medicine. You see, I resorted to herbal drugs after an ugly incidence of buying adulterated orthodox medicine that worsen my sickness. Since then, I lost confidence in orthodox and now prepare herbal drugs for personal use and for sale to prospective users.

INTERVIEWEE E: I use herbal drugs but sparingly. I take herbal drugs specifically for illnesses with no pharmaceutical remedy. Besides, one can easily obtain them from nature and natural endowments.

INTERVIEWEE H: I use only traditional herbal drugs because I can't afford to buy the Chinese food supplements and other traditional medical drugs. Due to economic implications, I take only traditional herbal drugs but sparingly.

The interviewees were also asked questions on the modes of using herbal drugs (See Appendix IV). Major mode of using herbal drugs was instruction by traditional medicine man as against the position of Interviewee C who said that since she prepares herbs herself, she takes them according to the dictates of her mind and the nature of herbal mixtures. Interviewee D said he takes herbal drugs out of addiction, but most especially, through the recommendations of traditional medicine dealers. Interviewee F stated that he only takes hygienically prepared by medicine man but whose potency claims do not connect any fetish rituals. One striking finding of the study reflected in the response of Interviewee H who combines the use of both herbal and orthodox drugs to ensure complete healing and Interviewee J who gave suggestions why people prefer the use of herbal drugs to orthodox medicine.

INTERVIEWEE H: I take herbal drugs but I combine it with orthodox medicine so I can be assured of total healing. (Laughs) Sir, the only problem I have with herbal mixture is the issue of hygiene in the preparation and administration. Beside this, I think that government should encourage the production of herbal drugs because of its potency and naturalness.

INTERVIEWEE J: I take herbal drugs regularly and hardly take orthodox medicine. My choice of herbal drugs is linked to its naturalness. You see, Nigerians hardly trust orthodox medicine because some drug dealers import fake drugs and the regulatory body; NAFDAC hardly monitors the influx of these drugs. I think herbal drugs are good for me.

On the problems associated with the use of herbal drugs, the interviewees identified side effects in forms of overdosage and unregulated herbal compositions (see excerpt of Interviewee B and E); however Interviewees C and D argued that there is no side effect associated with the use of herbal drugs. This latter position may be influenced by the occupations of the interviewees as native doctors.

INTERVIEWEE B: To me, my problem with herbal drugs is unregulated composition and measurement of dosage; for instance, when a medicine man says ‘take this medicine with a cup, he may not be specific on the size of cup and I may be tempted to use a big cup for measurement’. The result is that most users suffer from overdosage of herbal products. You can just image the outcome of such overdosage.

INTERVIEWEE E: My problem is not really with overdosage by drug composition. I think there is generally, a problem of who constitutes a mixture. Sometimes, what a person mixes is different for another person. This means that there is no uniformed composition and administration of herbal drugs among users. At times, the composition is allowed to ferment for days thereby increasing the acidity of such mixture. What becomes of people that suffer ulcer is better left to the imagination.

On the extent of knowledge of side effects of herbal drugs, all the interviewees are fully aware of the side effects of herbal drug except Interviewee C:

INTERVIEWEE C: There is no side effect as long as proper care is taken in the preparation and administration of herbal mixtures. I am a practitioner and know how to mix and administer herbal drugs. To me, I insist that the use of herbal drug is without a side effect. In fact, it is easier to have adulterated forms of orthodox medicine than herbal drugs that are obtained from nature.

On further probe, Interviewee I (see Appendix iv, 164) stated that to reduce chances of side effects as a result of ‘trial-and-error’ practice, he uses a computerised machine to scan and prescribe herbal mixtures:

INTERVIEWEE I: As a dealer on *Botrend* herbal food supplements (not in trado-medicine drugs), I don’t take nor recommend the use of herbal products to users arbitrarily without doing a clinical examination to reduce the occurrence of side effects of herbal products. For instance (pointing to a computerised machine on the table), I use this machine called Quantum Magnetic Resonance Body Analyser to scan the body system of herbal drug users. What this machine does is to identify the actual health problems of the users, checks whether the person can take a particular drug due to his health history and then, recommends appropriate drugs for the health problem. By doing this, we reduce the chances of side effects with use of our herbal food supplements unlike the unregulated herbal products.

Research Question two measured herb users’ exposure to health information on herbal drug use. The interviewer asked the interviewees three questions to ascertain whether the interviewees are exposed to health information on herbal drug use, the sources of information and which source influences their choice of herbal drugs. All interviewees agreed to have exposure to health information on herbal drugs, however, Interview D attributed her exposure to an inherited healing ability that runs in her lineage (see excerpt Interviewee D)

INTERVIEWEE D: (*Somewhat authoritatively*) I learnt all I needed to know about herbal drugs from my father who was a traditional medicine man (dibia) and such gift of traditional healing runs in our family.

On further probe on the sources of health information on herbal use, all the interviewees stated that they get their information from friends and associates by referral method which is based on testimonials of those who have used such herbal drugs. Interviewee A

indicated getting information from personal selling of medicine dealers in buses or public places. Apart from getting information from friends and associates, Interviewees B, G and I get health information on herbal drugs through the mass media (with exception of magazine).

INTERVIEWEE B: As a civil servant, I get health information on herbal use through television broadcast though infrequently. I equally listen to radio on news on herbs but I don't really enjoy it perhaps, due to its audio nature. I get most of health information from friends and associates. It becomes because you have depend on testimonies of good effects of these drugs to buy. For me, I can't take a drug no one has taken; it is tantamount to playing with one's life.

INTERVIEWEE G: I get from television broadcast at time but mainly from friends and associates who have used the drugs and can attest to its efficacy.

INTERVIEWEE I: I depend on the testimonies of my friends and associates to use herbal drugs. I occasionally read about herbs in newspapers and listen to health discussions on herbal drugs on radio.

Significantly, all the interviewees agreed that referral method influenced them most in preference to herbal drugs. This referral method is based on testimonials of those that have used such herbal drugs, however, Interviewees B, E and G, H and I combined referral method with the mass media and the Internet.

INTERVIEWEE B: Information from friends and associates and the use of television in dissemination of health issues on herbal drug use.

INTERVIEWEE E: Information from friends and a bit of news from radio health programmes.

INTERVIEWEE G: Information from friends and newspaper

INTERVIEWEE H: Referral method by friends and associates and sometimes, through television broadcast

INTERVIEWEE I: To me, I get health information from television, radio, newspapers and even the Internet but referral method influences me a lot. This is because I use these herbs because others have used and testified to the efficacy of such drugs.

Research Question three measured herb users' health beliefs about herbal drug use. Three questions were used to ascertain whether the interviewees. Majority of the interviewees do not know of health belief about herbal drugs except Interviewees C and D that stated that there are health beliefs:

INTERVIEWEE C: Yes

INTERVIEWEE D: Yes and it is essential in efficacy of drugs.

On the probe whether the interviewees check for NAFDAC registration number before taking herbal drugs, majority of the interviewees stated that they do not except Interviewee I who works for *Biotrend* Herbal products:

INTERVIEWEE I: Yes. This is because our *Biotrend* herbal food supplements are registered with NAFDAC.

Research Question four addressed the question of correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria. Three questions were raised to address the issue of determining whether there is a correlation between available health information and user health beliefs. Responses among the interviewees showed mixed reactions as some interviewees stated there is a correlation while others disagreed. Those who agreed on a correlation argued that the potency of herbal drug is dependent on belief associated with its use, thus a user's belief plays significant role in the efficacy claims of herbal drugs.

INTERVIEWEE A: There is oooooooo! There is a correlation between user health belief and effectiveness of herbal drugs. This means that the effectiveness of herbal drug

is derived from the belief attached to it by the potential user. It is not per se about health information but that the user's belief plays significant role in its efficacy.

INTERVIEWEE C: (Laughs) You see, there is no way both cannot relate because it is information that tells you the composition and then, faith is required for a drug to be healing-worthy.

INTERVIEWEE F: Both can apply because there is a certain amount of faith that is required of herbal drug user before a drug can be effective. It is not just having adequate health information about the product but the user also believes in the efficacy of such drug.

Those who disagreed on possible correlations argued that herbs derived their potency from the naturalness of the source plants and ability of the user to adhere strictly to the information on the mode of use of such herbal products.

INTERVIEWEE B: I don't think that user's health belief is a factor because these herbs derive their potency from the naturalness of their plants; not a case of attaching obnoxious belief to them.

INTERVIEWEE E: There is no correlation because if adequate health information about herbal drug is given to the user and he adheres strictly to instructions, then the effectiveness of the herbal drug is largely dependent on application of instruction than health belief.

INTERVIEWEE G: I think there is no correlation because a user with adequate health information on herbal drug may not have any special belief for the drug to be efficacious.

INTERVIEWEE H: No. The efficacy of herbal drug is derived from correct composition and adequate health information on mode of administration and knowledge of likely side effects. It does not require a special belief for these drugs to be efficacious.

INTERVIEWEE I: There is no correlation between adequate health information and user's belief because adequate health information is enough to bring about efficacy and not user's belief. Do you know that if I have faith but do not take herbal drugs according to prescription that I will not be alright? No, it is better to get adequate information instead of health belief.

On further probe on whether effectiveness of herbal drug is dependent on beliefs associated the use of herbal drugs, the interviewees expressed mixed reactions. All interviewees stated that there is no correlations except Interviewees C, D and J that stated otherwise.

INTERVIEWEE C: There are some beliefs associated with the use of herbal drugs especially the aspect that supports that healing claims of these drugs are derived from the person who administers such drug. It translates that only a traditional medicine man (*dibia*) through incantations makes these herbs efficacious.

INTERVIEWEE D: The effectiveness of herbal drug is dependent on belief system. The healing power is rooted in one's lineage and transmitted from generation to another. This means that a herb's healing powers are deposited in the man administering them. It equally involves some aspects of fetish incantations to seek the assistance of spirit who make these drugs efficacious.

INTERVIEWEE J: There is a correlation between effectiveness of herbal drug and users' belief. Let me explain well. Some of the herbal drugs are products of traditional mixtures usually by means of divination. This means that a user's belief is important for the drug to be efficacious. If the administration demands killing a cock for a ritual, then if such ritual is done, there is a tendency that the drug will be

ineffective. This explains that among Africans especially herbal drug users in Southeast Nigeria, one's belief is as important as the herbal drug itself. In fact, both factors correlate in unequal proportion.

4.3 Discussion of Findings

The analysed data consisted of a survey of 380 respondents and 10 persons interviewed for in-depth interview. The analysis was based on the four research questions raised in the study. Research question one focused on measuring the level of herbal use in Southeast, Nigeria. The analysed data showed that selected respondents take herbal drugs with 231 (61%) using herbal drugs regularly and 149 (39%) respondents rarely take herbal drugs. However, the purposes of use of herbal drugs differ among the respondents with a high concentration of 276 (72%) respondents likely to abuse herbal drugs as they use herbal product for self-medication. A reasonable score of 98(25%) respondents take herbal drugs based on prescription by native medicine practitioners and friends. Remarkably, only 12 (3%) respondents take herbal drugs based on doctor's prescription which supports the studies of Pelletier (2004); Talalay (2001) and Elvin-Lewis (2001) that indicated that although herbal medicine has shown promising potentials with their efficacy claims, many of them remain untested thus raising serious health issues concerning herb use vis-à-vis health information. The responses from conducted interview revealed that all the respondents use herbal products either as drugs or food supplements. However, further probe revealed that preferences to type of herbal products were as a result of fear of adulterated orthodox medicines n the basis of composition (see excerpt of Interviewees C and E) and economic implications (see excerpt of Interviewee H). Though some herb users doubt the efficacy of herbal medicine, a good number is ready to vouch for its potency. This marks a point of departure from the tenets of orthodox medicine that is scientific and testable. This accounted for poor integration of herbal drug into the mainstream of medicine practice.

The analysis on respondents' knowledge of problems associated with the use of herbal use showed that 145(38%) respondents identified unscientific composition of herbal mixtures. This supports the studies of the studies of WHO (2001) and Ekeanyanwu (2011) which indicated that the biggest problem with herbal medicine are a lack of standardisation and of safety regulations. Standardisation of herbal medicine that may contain hundreds of chemical constituents with little or no evidence indicating which might be responsible for the presumed or proven therapeutic effect is a particularly theory issue. Out of the selected respondents, 129 (34%) respondents identified unhygienic preparation of herbal drugs as a major problem of use of herbal drug. The response supports Lewis (2001) that the major criticism of herbal medicine is the issue of poor hygiene associated with its extraction, preparation and administration which may result to adverse side effects. The analysed data showed that over-dosage is an important issue militating against effective use of herbal drugs as 93 (25%) respondents stated that there is a problem of unregulated dosage administration which may lead to adverse side effects. Prevention and dosage measurement are serious problems in developing countries. In this case, the finding of Rodrigues and Barnes (2013) argued that there may be cases of contamination and other poisonous toxins that are harmful to the body which may lead to death. As a means of checking these side effects in the use of herbal drugs, the analysis of conducted interview revealed that Interviewee I (a staff of *Biotrend Herbal Products*) stated that to reduce chances of side effects as a result of 'trial-and-error' practice, he uses a computerised machine called Quantum Magnetic Resonance Body Analyser to scan the body system of herbal drug users. What this machine does is to identify the actual health problems of the users, checks whether the person can take a particular drug due to his health history and then, recommends appropriate drugs for the health problem. By doing this, there is significant reduction of the chances of side effects with use of our herbal food supplements unlike the unregulated herbal products.

Research question two measured users' exposure to health information on herbal drugs. From data analysed, it showed 335(88%) respondents are exposed to health information on herbal drugs; 27(7%) respondents do not expose to health information while 18(5%) respondents are neutral. The import is that there is high accessibility to information on

herbal drugs in Southeast, Nigeria. However, the scores for mode of information revealed that most respondents get their information through native health workers and friends and associated in a combined score of 70%. The data equally indicated that people in Southeast Nigeria rarely expose them to health information on herbal drugs through modern mass media except television medium which 77(20%) respondents identified that they use to get health information on herbal drugs sometimes in form of news on herbal trade fairs. Remarkably too, magazine has a poor score of 5(1%) respondents which maybe unconnected with magazine's attribute of loyal readership and cost. It was easier for respondents in rural areas to get information from their native doctors or friends and associated who may have used the recommended herbal drugs. The data analysed also showed that 237(62%) stated that the messages were informative and educative; 126 (33%) stated that the messages were persuasive while 11(3%) stated that the messages were entertaining as some native herbal drug sellers may adopt the use of cultural display to sell herbal products. On respondents' knowledge of side effects of herbal drugs, data analyzed indicated that most herbal users rarely know much about side effects of herbal drugs with a score of 209(55%) respondents while 163(43%) respondents are ever conscious of side effects of herbal drugs. Result of conducted interviewed reveal that referral method is best used in exposure to information on herbal use. The referral method is based on testimonials from those that have used particular herbal products and testify to their efficacy. The interview also identified the use of mass media and the Internet with the exception of magazine. The result of survey and interview rightly confirmed that herbal users in Southeast Nigeria are exposed to health information on herbal drugs.

Research question three measured health beliefs influence on users' attitude to herbal drugs. Using a 5-step Licket scale, data analyzed indicated that 156(41%) respondents agreed that there is a correlation between health beliefs and users' attitude to herbal drugs thus supporting the studies of Shehu and Sheshi (2007) and Onwuanibe (1979) that that a more worrisome challenge about herbal medicine is the association with spiritual or superstitious belief on the efficacy of herbal medicine. They argued that some healers

may employ the use of charms, incantations, and the casting of spells in their treatments. A score of 132 (35%) disagreed on the above assertion and held that herbal drugs derived their potency from nature and not based on users' belief system. Findings of the interview revealed a mixed reactions as some interviewees stated there is a correlation while others disagreed. Those who agreed on a correlation argued that the potency of herbal drug is dependent on belief associated with its use, thus a user's belief plays significant role in the efficacy claims of herbal drugs. Those who believed that there is no correlation argued that herbs derived their potency from the naturalness of the source plants and ability of the user to adhere strictly to the information on the mode of use of such herbal products.

Research question four measured the correlation between available health information and users' health beliefs in influencing herbal drug use in Southeast Nigeria. The data analysed indicated that 201(53%) respondents agreed that they received information on herbal drugs through publicity with may include the use of word-of-mouth advertising commonly used by native health workers who sell herbal drugs at marketplaces and buses. These respondents depend largely on sales promotional activities of these native health workers which include displays in creating awareness on herbal drugs. On respondents' response on inadequate information vis-à-vis efficacy claims, data showed that majority of respondents (54%) strongly agreed that lack of adequate information in Southeast has led to the predominance of unverifiable claims, unsubstantiated efficacy claims and misconceptions about herbal drugs. In this case, use of herbal drugs in Southeast is inhibited by lack of adequate on effective use of medicinal herbs vis-à-vis efficacy claims. A combined percent of 33% agreed (strongly disagreed and disagreed) on the grounds that lack of inadequate information does not affect the efficacy of herbal drugs.

From the combined analysis of data, we can summarise the major findings viz:

1. The Quantitative (Survey) Data Findings

- a. The study found that there is moderate use of herbal drugs in Southeast Nigeria. However, the purposes of use of herbal drugs differ among the respondents. It was found out that although herbal medicine has shown promising potentials with their efficacy claims, many of them remain untested thus raising serious health issues concerning herb use vis-à-vis health information. This has led to slow pace of integration of herbal drug into the mainstream of orthodox medicine practice. Major issues included unhygienic method of preparation, unscientific composition and overdosage.
- b. The study also found that herbal users in Southeast Nigeria are exposure to health information on herbal drugs but the main sources are through interpersonal communication than the mass media. This interpersonal communication is usually by referral method and recommendation of herbal products by native doctors and their clients. This finding suggests that two-step flow theory would be ideal for a study of this nature. This is because this theory identifies the importance of opinion leaders in the formation of public opinions and it effectively challenges simplistic notions of direct effects. In the case of herbal drugs, the study found out that most users of herbal drug get their information from other patrons of herbal products. This is by referral methods. It equally showed that among the modern media of communication, only television is effectively used in disseminating information on herbal products. The study identified magazine as the least used media of communication, perhaps, due to its loyal readership and cost.
- c. It equally found that though some respondents held the view that users' beliefs can boost the potency of herbal drugs, our finding discovered that indeed, the efficacy of herbal is drawn from its natural constituents and preparation. The efficacy claims lack scientific authenticity so; we maintained that the users' belief claims are marginally and scientifically untestable and unverifiable.

- d. The study also found there was no correlation between health belief system and use of herbal drugs. The effectiveness of herbal drug is drawn from its naturalness and proper composition.

2. Qualitative (In-depth) Data Findings

- a. The study found that majority of persons interviewed use herbal drugs regularly due to its naturalness and to avoid taking orthodox medicine which they argued has been adulterated. Most people interviewed identified over-dosage, unhygienic herbal preparation and unscientific constituent as major challenges of use of herbal drugs. The study also found that majority of people interviewed do not check for NAFDAC registration number and other information on drug labels before using herbal products.
- b. The study found out that people in the Southeast Nigeria are exposed to health information on the use of herbal drugs however; the main source of information is interpersonal communication. Majority of persons depends on native medicine practitioners and friends (referral method) for information on herbal drugs than the modern media of communication.
- c. Except for those in the rural areas who believed that users' health belief can boost the efficacy of herbal drugs, those in the cities held a contrary view that herbs derived their potency from nature and proper preparation by specialists and not based on users' belief. Based on available data discussed above, we take the latter position that the potency of herbal medicines is based on its natural extraction, adequate preparation and accurate administration.
- d. The study also agreed with the survey finding that there is no correlation between health beliefs and efficacy of herbal drugs.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study was conducted to assess the correlation between health information and users' health belief of herbal drug users in Southeast Nigeria. It was carried out in the Southeastern States: Abia, Anambra, Ebonyi, Enugu and Imo. The study covered both urban and rural areas of the selected States. The Southeast, Nigeria was chosen because the geopolitical zone is blessed with rich vegetation and the practice of herbal drugs. This relative high use of herbal drugs may be due to accessibility, affordability, availability and acceptability of traditional herbal medicines by majority of the population in Southeast Nigeria. The use of herbs for the cure and prevention of diseases span through ages, however, its usage is somewhat tied to cultural background of the users thus determining their health belief systems.

The study was carried out to (a) determine whether people of Southeast use herbal drugs, and (b) whether people of Southeast are exposed to health information on herbal drugs and to what extent. The study equally tried to determine herb users' health beliefs about herbal drug use and if there is correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria.

To achieve the above, the study critically reviewed relevant literature and online sources on herbal use. Herbal drugs traverse many sections of healthcare ranging from its use in the areas of maternal health, orthopedic treatment (bone setting), psychiatry (mental health), and surgical and medical conditions. The mass media, therefore, provide members of the audience the opportunity to expand their awareness of health issues on health implications of herbal products.

The study adopted a mixed method: the survey and the in-depth interview methods. Both yielded reliable results and findings were made from the analysis. The study found that people in the Southeast Nigeria actually use herbal and are exposed to health information on herbal products, however, much health campaigns and creation of awareness on herbal product need to be carried out among the rural populace.

The study analysed data based on the items of the questionnaire. It was found that indeed, people of Southeast Nigeria use herbal drugs and there is relative awareness by different media of communication (both modern and traditional media) about the constituents and side effects of herbal drugs. The study found that although herbal medicine has shown promising potentials with their efficacy claims, many of them remain untested thus raising serious health issues concerning herb use vis-à-vis health information. This has led to slow pace of integration of herbal drug into the mainstream of medicine practice. Major issues included unhygienic method of preparation, unscientific composition and overdose.

5.2 Conclusion

The study used relevant research questions to establish the level of herbal use in Southeast Nigeria and the correlation between available health information and herbal drug use in Southeast Nigeria. Regardless of orthodox medicine, people in Southeast Nigeria continue to use herbal products either for therapeutic purposes or as food supplements. The common reasons for using traditional medicine may be connected with its efficacy claims and potency. The study equally assessed whether users of herbal drug in the Southeast Nigeria are exposed to health information on the benefits and health implications of herbal products.

The major finding of the study suggests that users' of herbal drugs in the Southeast Nigeria are moderately exposed to health information on the use of herbal drugs. However, personal contacts and traditional native doctors are major sources of health information on herbal drugs. Among the modern media of communication, it was

discovered that print media were seldomly used, especially magazine. The broadcast media were fairly used, especially television due to its audiovisual quality.

The study also discovered that users' belief systems do not necessarily add to the potency of herbal drugs thus critiquing the absolute application of the Health Belief Model in all health-related studies. Based on the prominent mode of information dissemination, the study suggested that Two-Step Flow theory will be equally applicable. Regrettably, the study discovered that most people who take herbal drugs in the Southeast Nigeria do not check for NAFDAC approval number before taking such herbal drugs. This poses a serious health threat to herbal drug users as such herbs could be toxic with wrong constituents.

5.3 Recommendations

Based on the findings of the study, the following recommendations are put forward:

- a. There should be re-awakening on the benefits of herbal drugs as alternative medicine to orthodox medicine. However, there should be proper quality control measures that are scientific and empirical-oriented. There should be a convergence of orthodox and traditional medicine so that each complements the other. Providers of medicines should be trained in the understanding of how herbal drugs could be integrated in modern medicine and its effects on the health of their patients. Based on the above, this study supports the integration of orthodox and traditional medicine with a suggestive term 'TRADO-ORTHODOX MEDICINE'. This is justified on the premise that the diagnosis and prescription of modern traditional medicines can be actualised through the use of technological devices such as the Quantum Magnetic Resonance Body Analyser which scientifically and clinically scans the body system with relative accuracy.
- b. Herbal products should be subjected to standardisation by relevant regulatory agencies. Efficacy claims of herbal preparations should be subjected to laboratory analysis. There should be research standards and methods for the evaluation of

the safety and efficacy of herbal drugs. In this case, all herbal mixtures should be duly registered with the regulatory agency: National Agency for Food and Drug Administration and Control (NAFDAC). It is not enough to be registered with NAFDAC; there should be periodic monitoring of the preparations and administration of herbal drugs to ensure they are within globally acceptable standards. Appropriate legislation should be put in check to identify quackery and abuse of herbal mixtures. Apart from having offices at State level, NAFDAC should equally open office outlets in all Local Governments of the Federation.

- c. Government at various tiers should encourage traditional medicine as a way of harnessing nature's gift to the health needs of the populace. There should be adequate fund and research opportunities on health-related matters. Although herbal medicine is within the regulation of NAFDAC, its practice should also be monitored by the Ministry of Health and discipline defaulters.
- d. There should be public enlightenment campaigns through health education about the nature, use and implication herbal intake. This includes training herbal practitioners in record keeping and use of modern technology in the extraction, procession and administration of herbal products. Healthcare providers should be trained in the understanding and use of herbal medicines and their effects on their patients.
- e. The curriculum of Mass Communication should include courses in health communication so as to design academic perspective to the study of health-related issues. The introduction of health journalism in the curriculum will provide a veritable training ground for future health reporters and news editors.

- f. As a step towards integrating herbal medicine practice and orthodox medicine, the government, through its relevant agencies in education, should integrate herbal medicine into the curriculum of medical studies. This will help in widening the horizon of our health system and exploring other opportunities in medical practice.

5.4 Suggestions for Future Research

- i. Research in herbal drugs vis-à-vis health information is relatively new and ongoing. One area of study could be to make a shift from a study on health belief system to studying the socio-cultural and psycho-economic dimensions of herbal drug uses. Do socio-cultural factors affect the use of herbal drug?
- ii. There could be a replication of this study in other geographical areas or other areas of health to consolidate the findings of this study.

5.5 Limitations of Study

Major limitations of the study include the misconception of some respondents towards the researcher, especially the selected persons for in-depth interview who were somewhat skeptical of the intention of the researcher. Some selected persons for the in-depth interview were uncooperative in their answers. There was the issue of language problem as some respondents (especially for the in-depth interview) are resident in rural areas thus vernacular (Igbo) was equally employed in discussion with such respondents.

References

- Abdullahi, A.A. (2011). 'Trends and Challenges of Traditional Medicine in Africa' *African Journal of Traditional, Complementary and Alternative Medicines*, 5, 115-123.
- Abimbola W. (1972). *Sixteen Great Verses of Ifa*. Paris: UNESCO.
- Abogunrin, S. O. (2004). Biblical Healing in the African Context. *Nigeria Association of Biblical Studies*; 3:2-24.
- Adum, A. (2011). *HIV & AIDS Controversies as a Probable Influence on Believability of HIV & AIDS Communication in Southeastern Nigeria*. A PhD Thesis, Department of Mass Communication, Nnamdi Azikiwe University Awka.
- Allison, D.B., Fontaine, K.R., Heshka, S., Mentore, J.L. and Heymsfield, S.B. (2001) Alternative treatments for weight loss: A critical review. *Crit. Rev. Food Sci. Nutr.*, 41, 1–28
- Altizer, K., Quandt, S., Grzywacz, J., Bell, R., Sandberg, J. and Arcury, T. (2013) 'Traditional and Commercial Herb Use in Health Self-Management Among Rural Multiethnic Older Adults' *Journal Appl. Gerontol* 32(4) 387-407.
- Alubo, S.O. (1995). *Medical Professionalism and State Power in Nigeria*. Jos: Centre for Development Studies, University of Jos.
- APMI Code (2010). AMPI Code of Practice on Advertising of Medicinal Products. <http://www.medicalcouncil.ie/Information-for-Doctors/APMI-Code-of-Practice-on-Advertising-of-Medicinal-Products-Issue-1.pdf>. Retrieved on 18-4-2017.
- Anazodo, A. O (2008). *Ethnographic Survey of Traditional Healthcare Practice in Nnewi North Local Government Area of Anambra State*. Unpublished B.A Project. Department of Archaeology and Tourism. University of Nigeria, Nsukka.
- Ara, T., Viqar, M. and Arshad, J. (2009). 'Use of Herbal Products and Potential Interaction in Patient with Cardiovascular Disease.' *Journal of Am Coll Cardiol* 9.55(6) 515-525.
- Arens, W., Weigold, M. and Arens, C. (2008). *Contemporary Advertising*. Boston: McGraw Hill Irwin.
- Astin, J. (1988). 'Why Patients Use Alternative Medicine: Results of a National Study.' *JAMA* 279(19) 1548-1553
<http://jama.ama-assn.org/cgi/content/full/279/19/1548>.

- Awodele, O., Amagon, K., Wannang, N. and Aguiyi, J.C. (2014). 'Traditional Medicine Policy and Regulations in Nigeria: An Index of Herbal Medicine Safety.' *Curr Drug Saf. 9(1)* 16-22.
- Ayimey, K.E., Awunyo-Vitor, D. and Gadawusu, J.K. (2013). 'Does Radio Advertisement Influence Sale of Herbal Products in Ghana? Evidence from Ho Municipality' *Modern Economy*, 4, 652-658
- Bandaranayake, W.M. (2006). 'Quality Control, Screening, Toxicity and Regulation of Herbal Drugs' in Ahmed, I., Agil, F. & Owais, M.(eds.) *Modern Phytomedicine: Turning Medicinal Plants into Drugs*. Weinheim: Wiley VCH GmbH and Co.
- Baran, S. and Davis, D. (2006). *Mass Communication Theories: Foundations, Ferment and Future*. New Delhi: Wads-Worth Cengage Learning.
- Batta, H. (2013). 'Health Communication Issues' in Wilson, D. & Batta, H. (eds.) *Science, Health and Environmental Communication: Global Issues and Local Perspective*. Ibadan: University Press.
- Batta, H. (2012). 'Press Coverage of Traditional Medical Practice in Nigeria.' *Journal of Communication*, 3(2) 72-89.
- Becker, M.H. and Rosenstock, I.M. (1984). 'Compliance with Medical Advice' in Steptoe & A. Mathews (eds.) *Health Care and Human Behaviour*. London: Academic Press.
- Bob, S. (2004). 'Recognition and Respect for African Traditional Medicine' <http://www.idrc.calen/ev-55582-201-1-topic.html>. *Canada Internal Development Research Centre*. Retrieved on 9 February 2015.
- Canter, P. H, and Ernst, E. (2004). 'Herbal Supplement Use by Persons Aged over 50 years in Britain: Frequently Used herbs, Concomitant Use of Herbs, Nutritional Supplements and Prescription Drugs, Rate of Informing Doctors and Potential for Negative Interactions.' *Drugs Aging*. 21, 597-605.
- Carpenter, C. (2010). 'A Meta-Analysis of the Effectiveness of Health Belief Model Variable in Predicting Behaviour.' *Health Communication*, 25(8)661-669.
- Center for the Study of Religion and Culture (2005). 'Use of traditional vs. orthodox medicine in help-seeking behavior for psychiatric disorders in Nigeria.' *Summer Fellowship Report 2005*.
- Cochran, W. G. (1977). *Sampling Techniques* (3rd Editon). New York: John Wiley & Sons.

- Cohen, P.A. and Ernst, E. (2010). 'Safety of Herbal Supplements: A Guide for Cardiologists.' *Cardiovasc Therm*, 28, 246-53.
- Conserve Africa Foundation (2002). 'Medicinal Plants and Natural Products' <http://www.conserveafrica.org.uk/medicinal-plants.pdf>. Retrieved on 14-3-2017
- DaSilva, E., Baydoun, E. & Badran, A. (2002). 'Biotechnology and the Developing World'. *Electronic Journal of Biotechnology* 5(1) <http://www.wikipedia.org.wiki/herbalism.com> retrieved on 12/5/2015.
- Dunu, I.V. (2011). 'Community Radio Broadcasting in Nigeria: A Study of Selected Campus Radio Stations in Southern Nigeria.' A PhD Thesis, Department of Mass Communication, Nnamdi Azikiwe University Awka, Anambra State.
- Ebeze, U. and Odemelam, C. (2015). 'Patterns of Exposure To Communication Interventions On Obstetric Fistula Among Men In Ebonyi State, Nigeria.' *New Media and Mass Communication*, (33), 49-60.
- Eisenberg, D. M. (1997). 'Advising Patients who seek Alternative Medical Therapies'. *Annals of Internal Medicine*, 127 (1) 61–69.
- Eisenberg, D. and Wright, T. (1995). *Encounters with Qi: Exploring Chinese Medicines*. New York: W.W. Norton and Company.
- Ekeanyanwu, C. (2011). 'Traditional Medicine in Nigeria: Current Status and the Future.' *Research Journal of Pharmacology*, 5(6), 90-94.
- Ekor, I. (2014). 'The Growing Use of Herbal Medicines: Issues Relation to Adverse Reactions and Challenges in Monitoring Safety.' *Journal Frontiers in Pharmacology*, 4(177): 1-16.
- Eliade, M. (2007). *Istoria credin Ńelor si ideilor religioase. De la epoca marilor descoperiri geografice pĭnă ĩn present* Vol 4, Ed. Polirom: Iasi.
- Elvin-Lewis, M. (2001). 'Should we be Concerned about Herbal Remedies'. *Journal of Ethnopharmacology*, 75 (2–3),141–164.
- Engebretson J. (2002). 'Culture and Complementary Therapies.' *Complement Ther Nurs Midwifery*. 8, 177–84.
- Enwere, O. (2009). 'Herbs in Orthodox Practice: A View by Media Students.' *African Journal of Traditional, Complementary and Alternative Medicine* 2009.
- Erah, H. (2002). Herbal Medicines: Challenges.' *Tropical Journal of Pharmaceutical Research*, Dec. 2002, 1(2) 53 – 54.

- Etkin, N. L. (1988). 'Ethnopharmacology: Biobehavioral Approaches in the Anthropological Study of Indigenous Medicines'. *Annual Review of Anthropology*. 17: 23–42.
- EU Regulations (2017). *EU Regulations on Food Supplements, Health Foods, Herbal Medicines*: <https://www.export.gov/article?id=EU-Regulations-on-Food-Supplements-Health-Foods-Herbal-Medicines1>. Retrieved on 7-12-2017.
- Fabricant, D.S. and Farnsworth, N.R. (2001). 'The Value of Plants used in Traditional Medicines for Drug Discovery'. *Environmental Health Perspective 109 Suple*. 1. 69-75.
- Fakeye, T.O., Adisa, R. and Musa, I.E. (2009). Attitude and Use of Herbal Medicines Among Pregnant Women in Nigeria'. *BMC Complementary Medicine: Herbal Medicine BMJ* 319, 1050-3.
- Food and Drug Administration (2002) *Good Manufacturing Practices (GMP)/Quality System (QS) Regulation* [<http://www.fda.gov/cdrh/dsma/cgmphome.html>]. Retrieved on 18-4-2017.
- Gaziano, C. (1983). 'The Knowledge-Gap: An Analytical Review of Media Effects' *Communication Research*, 10(4) 447-86.
- Glanz, K., Rimer, B. and Viswanath, K. (2008). *Health Behaviour and Health Education: Theory, Research and Practice (4th Edition)*. San Francisco, CA: Jossey-Bass.
- Global Net (2015). *Family Health Guide*. Edo: Jamsan Media Link.
- Gruenwald, J. (2008). *The Global Herbs and Botannicals Market, Nutraceuticals World*. Berlin: Analze
- Helwig, D. (2005). 'Traditional African Medicine' (<http://www.encyclopedia.com/doc/1G2-345100785.html>). *Gale Encyclopedia of Alternative Medicine*. Retrieved on 2-02-2017
- Hoffmann, M. (2007). *Academic Dictionary of Mass Communication*. New Delhi: Academic (India) Publishers.
- Ibrahim, A., Kazeem, A.O. and Amachree, M. (2011). 'Herbal Medicine Use Among Urban Resident in Lagos, Nigeria.' *Bio Med Central Complement Alternative Medicine 2011*, 11(117).
- Ike, N. (2005). *Dictionary of Mass Communication*. Owerri: Book-Konsult.

- Iroegbu, P. (2011). Igbo Medicine and Culture: The Concept of Dibia and Dibia Representations in Igbo Society of Nigeria: <http://chatafrik.com/articles/health-and-welfare/igbo-medicine-and-culture-the-concept-of-dibia-and-dibia-representations-in-igbo-society-of-nigeria#.WPSB-hImwTI>. Retrieved on 17-4-2017.
- Janz, N. and Becker, M. (1984). 'The Health Belief Model: A Decade Later.' *Health Education Behaviour*, 11(1) 1 – 47.
- Kenechukwu, S. (2014). *Mass Communication: An Introduction to Sociology of Mass Media*. Nnewi: CathCom Press.
- Kloucek, P., Polesny, Z., Svobodova, B., Vlkova, E. and Kokoska, L. (2005). 'Antibacterial Screening of some Peruvian Medicinal Plants used in Calleria District.' *Journal of Ethnopharmacology*, 99. 309-312.
- Kraft, K. and Hobbs, C. (2004). *Pocket Guide to Herbal Medicine*. New York: Thieme Stuttgart.
- Larsson, A., Kazeem, A.O. and Amachree, M. (2011). 'Herbal Medicine Use among Urban Residents in Lagos, Nigeria.' *Bio Med Central Complementary and Alternative Medicine* 2011, 11:117.
- Last, M. (2011). 'Another geography: risks to health as perceived in a deep-rural environment in Hausaland'. *Anthropology & Medicine*, 18 (2): 217–229.
- Li, L. (2000). 'Opportunity and Challenges of Traditional Chinese Medicine in face of the entrance to World Trade Organisation. *Chinese Information on Traditional Medicine*, 7, 7-8.
- Mayo, C. S. (2017). *Herbal supplements: What to know before you buy*. Boston: Mayo Foundation for Medical Education and Research (MFMER)
- McQuail, D. (2005). *Mass Communication Theory 5th Edition*. London: Sage Publications.
- Morgan, K. (2002). *Medicine of the Gods: Basic Principles of Ayurvedic Medicine* (<http://www.compulink.co.uk/-mandrake/ayureveda.htm>) Accessed on 21-02-2017.
- Musseini, I. (1981). *Islamic Medicine And Its Influence on Traditional Hausa Practitioners in Northern Nigeria*. USA: University of Wisconsin-Madison

- Nnadi, E. E and Kabat, H. (1984). 'Nigerians' Use of Native and Western Medicine for the Same Illness'. *Public Health Reports*. 99 (1): 93–98.
- NAFDAC (2015). 'Herbal Guidelines.' www.nafdac.gov.ng/guidelines/herbal-guidelines. Retrieved on 2 September, 2015.
- Nnorom, I., Osibanjo, O. and Eleke, C. (2005). Evaluation of Human Exposure to Lead and Cadmium from some Local Nigerian Medicinal Plants used in Calleria District.' *Journal of Ethnopharmacology*, 99: 309-312.
- Nwodu, L. (2006). *Research in Communication and Other Behavioural Sciences: Principles, Methods and Issues*. Enugu: Rhyce Kerex Publishers.
- Nwoko, K. (2009). 'Traditional Psychiatric Healing in Igboland Southeast Nigeria.' *African Journal of History and Culture (AJHC)*, 1 (2), 36-43.
- Okonkwo, E. (2015). 'Traditional Healing Systems Among Nsukka Igbo' *ResearchGate*, <http://www.researchgate.net/publication/273951184>. Retrieved on 17-04-2017.
- Okoro, N. (2013). *The Business of Advertising, 2th Edition*. Lagos: St. Benedette Publishers.
- Okunna, C.S. and Omenugha, K.A. (2012). *Introduction to Mass Communication 3rd Edition*. Enugu: New Generation Books.
- Olagunju, O.S. (2012). 'The traditional healing systems among the Yoruba' *Archeological Science Journal*, 1(2):6-14.
- Olowokere, A.E. and Olajide, O. (2013). Women's perception of safety and utilization of herbal remedies during pregnancy in a local government area in Nigeria. *Clinical Nursing Studies*, 1 (4), 1-22.
- Onuekwe, A.U. (2015). *Herbal Medicine Media Advertisement: A Study of Audience Perception and Purchase Decision in Southeast Nigeria*. A M.Sc Dissertation, Department of Mass Communication, Nnamdi Azikiwe University Awka.
- Onwuanibe, R.C. (1979). 'The Philosophy of African Medical Practice.' *A Journal of Opinion (African Studies Association)* 9(3) 25-28.
- Onyeka, T., Ezike, H., Nwoke, O., Onyia, E., Onuorah, E., Anya, S. and Nnacheta, T. (2012). 'Herbal Medicine: A Survey of Use on Nigerian Presurgical Patients Booked for Ambulatory Anesthesia. *BMC Complementary & Alternative Medicine* 2012 12:130 <http://www.biomedcentral.com/1472-6882/12/130>.

- Oreagba, I., Oshikoya, K. and Amachree, M. (2011). 'Herbal Medicine Use Among Urban Residents in Lagos, Nigeria' *Journal of the International Society for Complementary Medicine Research*, 11, 117-135.
- Osemene, K.P., Elujoba, A.A. and Ilori, M.O. (2011). 'A Comparative Assessment of Herbal and Orthodox Medicine in Nigeria.' *Research Journal of Medical Service Vol. 5(5)* 280-285.
- Oshikoya, K., Njokanma, O., Chukwura, H. and Ojo, O. (2007). 'Adverse Drug Reactions in Nigerian Children: *Paediatric and Perinatal Drug Therapy*, 8, 81-88.
- Osuchukwu, N.C., Eko, J.E., Abia, R. P. and Ochei, K. C. (2017). Use of Herbal Medicine among Adult Residents in Calabar Metropolis, Cross River State, Nigeria. *Journal of Complementary and Alternative Medical Research*, 2(3): 1-14.
- Rodrigues, E. & Barnes, J. (2013). 'Pharmacovigilance of Herbal Medicines: The Potential Contributions of Ethnobotanical and Ethnopharmacological Studies.' *Drug Saf.* 36, 1-12 . 10.1007.
- Rosenstock, I. (1974). 'Historical Origins of the Health Belief Model.' *Health Education Behaviour* 2(4) 328-325.
- Rosenstock, I., Stretcher, V. and Becker, M.H. (1988). 'Social Learning Theory and the Health Belief Model.' *Health Education and Behaviour* 15(2) 175-183.
- Saito, H. (2000). 'Regulation of Herbal Medicine in Japan' *Pharmacological Regulations*, 41, 515-519.
- Schulz, V., Hansel, R. and Tyler, V.E. (2001). *Rational of Phytotherapy: A Physician's Guide to Herbal Medicine, 4th Edition*. Berlin: Springer-Verlag.
- Shaw, D. (1998). 'Risks or Remedies? Safety Aspects of Herbal Remedies.' *Journal of Roy, Social and Medical*, 91, 294-296.
- Shehu, R.D. and Sheshi, B. (2007). 'Practice and Efficacy of Alternative Medicine in Nigeria.' *Journal of Health Education and Sports Science (JOHESS)*. Vol. 6(1) 6-10.
- Shu, E. N. (1997). 'Scientific Basis of Traditional Medicine' In J. O. Onwuka, & S. C. Ahaiwe (eds.) *Nigerian Heritage Okigwe: Whytem Publishers*.
- Sofowora, A. (1982). *Medicine Plants and Traditional Medicine in Africa*. Ibadan: Spectrum Books.

- Sushma, H.(2012). 'Herbal Therapy' <http://www.drhiranionline.com/herbal.therapy.htm> retrieved on 12/5/2015.
- Talalay, F. (2001). 'The Importance of Using Scientific Principles in the Development of Medicinal Agents from Plants' *Academic Medicine* 7(6) pp. 238-247.
- Tam, K., Gadbury, Amyot, C., Cobb, C.M. and Williams, K. (2006). 'Differences Between Herbal and Nonherbal Uses in Dental Practice.' *Journal of Dental Hygiene* 2006 Winter 80(1) 10.
- Tamuno, I. (2009). 'Traditional Medicine for HIV Infected Patients in Anti-Retroviral Therapy in a Tertiary Hospital in Kano, North West Nigeria.' *Asian Pac. Journal of Tropical Medicine*, 4(2) 152-155.
- Tamuno, I., Omole-Ohonsi, A. and Fadare, J. (2010). 'Use of Herbal Medicine Among Pregnant Women Attending a Tertiary Hospital in Northern Nigeria.' *The Internet Journal of Gynecology and Obstetrics*, 5(2) 1-11.
- Temitope, I. B, and Lawal, I. (2014). 'Traditional Medicine Practices among the Yoruba People of Nigeria: A Historical Perspective.' *Journal of Medicinal Plants Studies*, 2(6): 20-33
- Tyler, V.E. (2000). 'Herbal Medicine: From the Past to the Future.' *Public Health Nutrition*, 3, 447-452.
- Waldram, J.B. (2000). 'The Efficacy of Traditional Medicine: Current Theoretical and Methodological Issues'. *Medical Anthropology Quarterly*, 14 (4): 603–625.
- WebMD (2005). *Dietary Supplements (Herbal Medicines and Natural Products) - Topic Overview*.<https://www.webmd.com/food-recipes/tc/dietary-supplements-topic-overview#1>. Retrieved on 7-12-2017.
- Wimmer, R. and Dominick, J. (2011). *Mass Media Research: An Introduction*. California: Wadsworth Publishing Company.
- World Health Organization (2004). *WHO Guidelines on Safety Monitoring of Herbal Medicine in Pharmacovigilance System*. Geneva: World Health Organization.
- World Health Organisation (2004). *Guidelines for the Regulation of Herbal Medicines in the South-East Asia Region*. New Delhi: WHO Regional Office.

- World Health Organization (2005). *National Policy on Traditional Medicine Regulation of Herbal Medicine: A Report of WHO Global Survey*. Geneva: World Health Organization.
- World Health Organization (2001). 'Legal Status of Traditional Medicines and Complementary/Alternative Medicines: A Worldwide Review'. <http://apps.who.int/medicinesdocs/en/d/Jh2p43e/> accessed on 3/10/2016.
- World Health Organisation (1996). *Final report of the seminar on the use of medicinal plants in health care*. Tokyo: WPRO Publication.
- World Health Organisation (1988). *Ethical Criteria for Medicinal Drug Promotion*. Geneva: World Health Organisation.
- World Self-Medication Industry (2008). *Advertising of Nonprescription Medicines to the Public: A Significant Contributor to Healthcare*. Ferney-Voltaire: C.I.B Immeable.
- Zick, S., Schwabi, H., Flower, A., Lac, D., Chakraborty, B. and Hirschhorn, K. (2009). 'Unique Aspects of Herbal Whole System Research' *HHS Public Access Explore (NY)* 5(2) 97-103.
- Zhou, J., Ouedraogo, M., Qu, F. and Duez, P. (2013). 'Potential Genotoxicity of Traditional Chinese Medicinal Plants and Phytochemicals: An Overview.' *Phytother Research*, 10, 22-34

APPENDIX I: LETTER OF INTRODUCTION

School of Postgraduate Studies,
Department of Mass Communication,
Nnamdi Azikiwe University,
Awka,
Anambra State.
27th January, 2017.

Dear Respondent,

LETTER OF INTRODUCTION

I am a PhD student in the Department of Mass Communication, Nnamdi Azikiwe University Awka and currently carrying out a study on 'HERBS, HEALTH INFORMATION AND USERS' HEALTH BELIEF: A STUDY OF HERBAL DRUG USERS IN SOUTHEAST NIGERIA.' The purpose of this research is to study the level of herbal drug use in Southeast Nigeria and to determine the correlation between health information and herbal drug use in the area under study.

Kindly answer every question as accurately and objectively as possible. Your participation is voluntary and remains anonymous. This study is strictly for academic purpose and the confidentiality of information is guaranteed.

Yours faithfully,

Kenechukwu, Stephen Afam

2013127003P

APPENDIX II: QUESTIONNAIRE

INSTRUCTION: Carefully read the questions below and tick (√) for the appropriate answer.

SECTION A: BIO-DATA

1. Gender: Male () Female ()
2. Age: 16 - 20 () 21 – 25 () 26 – 30 () 31 – 35 () 36 – 40 () 41 and above ()
3. Marital Status: Single () Married ()
4. Location: Abia State () Anambra State () Ebonyi State () Enugu State () Imo State ()
5. Place of Residence: Urban () Rural ()
6. Occupation: Farmers () Traders () Civil servants () Students ()

SECTION B

7. Do you use herbal drugs? Yes () No ()
8. How often do you use herbal drugs? Regularly () Rarely ()
9. What is your mode of using herbal drugs? (a) Self medication () On Doctor's prescription () On prescription by non-medical doctor ()
10. Are you addicted to taking herbal drug? Yes () No () Don't know ()
11. What is your awareness level of herbal drug use in Southeast? Very high () Average () Low ()
12. What do you use herbal drug for? (a) Cure for diseases () As food supplement () Addiction ()
13. What do you think is the problem associated with the use of herbal drugs? Unhygienic preparation () Unscientific composition () Over-dosage () Don't know ()
14. Have you experienced side effects of herbal drugs? Yes () No () Don't know ()

15. To what extent are you aware of the side effects of herbal drug use? To great extent () To low extent () Don't know ()
16. What is the nature of side effects you have experienced? Body reactions () Abdominal pains () Vomiting () Organ failure ()
17. Are you exposed to health information on herbal drug use? Yes () No () Don't know ()
18. To what extent are you exposed to health information on herbal drugs? To great extent () Average () Low extent () Don't know ()
19. What is the source of your health information on herbal use? Television () Radio () Newspaper () Magazine () Native Health workers () Friends and associates ()
20. How often do you receive health information on your chosen source of information? Regularly () Rarely () Don't know ()
21. Which of the sources influences your choice of herbal drugs most? Television () Radio () Newspaper () Magazine () Native Health Workers ()
22. What is the nature of messages on herbal drugs from your source of health information on herbal drugs? Informative and educative () Persuasive () Entertaining () Don't know ()
23. How often does your source of information on herbal drugs inform you about the side effects of herbal drug use? Regularly () Rarely () Don't know ()
24. What is the form of information on herbal drug use? News story () Editorial () Print adverts () Personal conversations ()
25. Have you heard about National Agency for Food and Drug Administration and Control (NAFDAC)? Yes () No () Don't know ()
26. Is NAFDAC a regulatory agency on herbal drugs? Yes () No ()
27. Do you think NAFDAC has effectively regulated the extraction, processing, distribution and use of herbal drugs in Nigeria? Effective () Ineffective () Don't know ()
28. Do you check for NAFDAC registration number on herbal drugs before using such drug? Yes () No () Don't know ()

29. How often do you check NAFDAC Number on herbals before use? Regularly ()

Rarely () Don't check at all ()

Using the following scales, kindly rate your responses to the following statements.

S/N	Statements	Strongly Agree	Agree	Strongly Disagree	Disagree	Undecided
30.	There is correlation between health belief and use of herbal drugs					
31.	I use herbal drug because I believe in its efficacy more than orthodox medicine					
32.	Herbal drug is effective when the user attaches some beliefs to its use					
33.	The use of incantations adds to the efficacy of herbal drugs					
34.	Herbal drugs are effective because of its natural source unlike orthodox medicine that is synthetic in nature.					
35.	I find herbal drugs potent because they are administered by native doctors or diviners.					
36.	The use of herbs for the cure and prevention of diseases is tied to cultural background of the users thus determining their health belief systems.					

37.	The approach to herbal healing ranges from the use of medicinal herbs to introducing certain spiritual incantations to make the herb efficacious.					
38.	Herb use is often tied to the type of cultural belief as well as religious beliefs of a society.					
39.	There is health question on the side effects of herbal medicine that range from unregulated preparation procedure, composition and dosage problems.					
40.	Some believe that the potency of herbs is derived from its spiritual significance or <i>shamanism</i> .					
41	Some users attach spiritual beliefs to the use of herbs.					

42.	There is correlation between health information and user' health beliefs in the use of herbs vis-à-vis the inherent side effects associated with herb use in Southeast					
-----	--	--	--	--	--	--

43.	Residents of Southeast Nigeria are known for use of herbal drugs					
44.	Residents of Southeast Nigeria depend largely on publicity as a means of creating awareness on herbal drugs					
45.	Use of herbal drugs in Southeast is inhibited by lack of adequate information on effective use of medicinal herbs in relation to side effects associated with its usage.					
46.	Lack of adequate information in Southeast has led to the predominance of unverifiable claims, unsubstantiated efficacy claims and misconceptions about herbal drugs					
47.	Information on herb use may also be distorted or disseminated through a wrong channel thereby alienating potential users from access to health information.					
48.	Lack of adequate information inhibit effective use of herbal drugs in Southeast Nigeria					

49.	Inadequate information affects efficacy claims of herbal drugs					
50.	Traditional practitioners in herbal medicine don't divulge relevant information on composition, preparation and dosage of herbal drugs.					
51.	Lack of information or distorted information has led to bad practice of herbal medicine including the composition, preparation and dosages.					

APPENDIX III: IN-DEPTH INTERVIEW (SELECTION OF INTERVIEWEES)

I am a PhD student in the Department of Mass Communication, Nnamdi Azikiwe University Awka and currently carrying out a study on “HERBS, HEALTH INFORMATION AND USERS’ HEALTH BELIEF: A STUDY OF HERBAL DRUG USERS IN SOUTHEAST NIGERIA.” The purpose of this research is to study the level of herbal drug use in Southeast Nigeria and to determine the correlation between health information and herbal drug use in the area under study.

Kindly answer every question as accurately and objectively as possible. Your participation is voluntary and remains anonymous. This study is strictly for academic purpose and the confidentiality of information is guaranteed.

SELECTION OF INTERVIEWEES

ABIA STATE

1. INTERVIEWEE A: Uzoma Onwu (Umuahia) Trader
2. INTERVIEWEE B: Uzoma Chigbu (Aba), Civil Servant

ANAMBRA STATE

1. INTERVIEWEE C: Mrs Rachael Ezenwa (Okija) Petty Trader/herbal medicine dealer
2. INTERVIEWEE D: Nze Emma Ubabuko Oledibemma (Ihiala), Herbal medicine dealer

EBONYI STATE

1. INTERVIEWEE E: Emma Itumo (Abakaliki) Trader
2. INTERVIEWEE F: Ambrose Mba (Abakaliki) Drug dealer

ENUGU STATE

1. INTERVIEWEE G: Virginus Ikechukwu (Enugu) Trader
2. INTERVIEWEE H: Patricia Ikeh (Enugu) Civil Servant

IMO STATE

1. INTERVIEWEE I: Mr Afam Raymond Sidney (Owerri) Staff, Biotrend Herbal Product
2. INTERVIEWEE J: Anthonia Odioye (Mgbidi) Civil Servant

INTERVIEW SCHEDULE

QUESTIONS FOR THE IN-DEPTH INTERVIEW

To determine the level of herbal drug use in Southeast Nigeria

1. How often do you use herbal drugs? Please explain.
2. What is your mode of using herbal drugs?
3. What do you think is the problem associated with the use of herbal drugs?
4. To what extent are you aware of the side effects of herbal drug use?

To ascertain herb users' exposure to health information on herbal drug use

5. What is the nature of side effects you have experienced?
6. Are you exposed to health information on herbal drug use?
7. What is the source of your health information on herbal use?
8. Which of the sources influences your choice of herbal drugs most?

To ascertain herb users' health beliefs about herbal drug use

9. Do you know of health beliefs associated with herbal drugs?
10. Do you check for NAFDAC registration number on herbal drugs before using such drug?
11. How often do you check NAFDAC Number on herbals before use?

To determine the correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria

12. Are there correlations between health belief and use of herbal drugs?
13. Are herbal drugs effective when the user attaches some beliefs to its use?
14. Do you think herbal drugs are potent because they are administered by native doctors or diviners?

APPENDIX IV: INDEPTH INTERVIEW TRANSCRIPT

To determine the level of herbal drug use in Southeast Nigeria

1. How often do you use herbal drugs? Please explain.

INTERVIEWEE A: (Laughs) I use herbal drugs but not too regular. I only use it as food supplement such as *Tianshi* herbal food supplements but I seldom use them. Though I use it but I am somewhat scared of its implications.

INTERVIEWEE B: I use herbs but sparingly. I use herbs both as food supplements and for cure of ailments. I don't prepare these herbs but I often take them because of my faith that it cures sicknesses better than 'oyibo' medicine.

INTERVIEWEE C: I use herbal drugs oooooo! Just that I don't like it due to its composition which I always see as being too acidic for my liking however; I manage to take herbal drugs only when I am sick.

INTERVIEWEE D: I prepare and take herbal drugs regularly. I don't trust orthodox medicine again so I prepare my own herbs and take them as medicine. You see, I resorted to herbal drugs after an ugly incidence of buying adulterated orthodox medicine that worsen my sickness. Since then, I lost confidence in orthodox and now prepare herbal drugs for personal use and for sale to prospective users.

INTERVIEWEE E: I use herbal drugs but sparingly. I take herbal drugs specifically for illnesses with no pharmaceutical remedy. Besides, one can easily obtain them from nature and natural endowments.

INTERVIEWEE F: I only use food supplements and not raw herbal mixtures.

INTERVIEWEE G: I use both herbal drugs and food supplements but I take more food supplements supposedly *Tianshi* products than traditional herbal drugs.

INTERVIEWEE H: I use only traditional herbal drugs because I can't afford to buy the Chinese food supplements and other trado-medical drugs. Due to economic implications, I take only traditional herbal drugs but sparingly.

INTERVIEWEE I: I take herbal drugs but only when I prepare them myself. I consider the hygienic aspect of its preparation before I take.

INTERVIEWEE J: Hahahahaha! I take ooooo! I only take herbal drugs in powder form not a liquid type.

2. What is your mode of using herbal drugs?

INTERVIEWEE A: My mode of using herbal drugs is mainly by liquid form in which I adhere to the instructions of the medicine man. I equally take it in powdered form but sparingly.

INTERVIEWEE B: (Laughs at the interviewer) Why do you ask? Anyway, I take herbal drugs based on the prescription of our traditional medicine man that prepares it. Sometimes, the instruction is to allow it two days to ferment; after which, I drink the drugs.

INTERVIEWEE C: Since I prepare herbs myself, I take them according to the dictates of my mind and the nature of herbal mixtures. While some herbs may require swallowing, another may require chewing but I prefer swallowing herbal mixtures.

INTERVIEWEE D: I take herbal drugs by swallowing them though often with difficulties due to bad taste. In fact, I am addicted to the use of herbs for self-medication. I get recommendations of herbal drugs from associates but most especially, through the recommendations of traditional medicine dealers.

INTERVIEWEE E: I take herbal food supplements after each meal. I use traditional herbal drugs sparingly.

INTERVIEWEE F: I take only herbal drugs that are hygienically prepared by medicine man but whose potency claims do not connect any fetish rituals.

INTERVIEWEE G: I just take herbal drugs without consideration on the type of drug but I try to read information leaflets to understand the composition of such herbal products before use.

INTERVIEWEE H: I take herbal drugs but I combine it with orthodox medicine so I can be assured of total healing. (Laughs) Sir, the only problem I have with herbal mixture is the issue of hygiene in the preparation and administration. Beside this, I think that government should encourage the production of herbal drugs because of its potency and naturalness.

INTERVIEWEE I: I sell and use only herbal food supplements and we administer body screening before prescription of use our herbal products.

INTERVIEWEE J: I take herbal drugs regularly and hardly take orthodox medicine. My choice of herbal drugs is linked to its naturalness. You see, Nigerians hardly trust orthodox medicine because some drug dealers import fake drugs and the regulatory body; NAFDAC hardly monitors the influx of these drugs. I think herbal drugs are good for me.

3. What do you think is the problem associated with the use of herbal drugs?

INTERVIEWEE A: Chei! The problems associated with the use of herbal drugs are many but I only feel dizzy after taking certain herbal roots. I do not experience any side effect after taking herbal food supplements.

INTERVIEWEE B: To me, my problem with herbal drugs is unregulated composition and measurement of dosage; for instance, when a medicine man says ‘take this medicine with a cup, he may not be specific on the size of cup and I may be tempted to use a big cup for measurement’. The result is that most users suffer from overdosage of herbal products. You can just image the outcome of such overdosage.

INTERVIEWEE C: I am a trado-medicine woman and specialises in the preparation and administration of herbal drugs. We give proper recommendation on the dosage but the problem is that most users do not adhere to those instructions. They rather, think that by taking overdose, the ailment will be cured faster. This is wrong because the drugs take time to heal the wound. You see that plant at the corner (*showing the interviewer some herbs*), you only need to put a small of it to the other herbs at the other corner (*showing the interviewer another heap of herbs*). You will get a right mix if these herbs are perfectly combined.

The rule is to mix according to instruction and once the instruction is obeyed, there is no problem associated with the use of herbs for medicinal purpose.

INTERVIEWEE D: I have been into this trado-medicine business for years. It is the best of medicine to take for the cure of ailments. There is no problem associated with the use of herbs for medicine purpose once the user adheres to instructions.

INTERVIEWEE E: My problem is not really with overdosage by drug composition. I think there is generally, a problem of what constitutes a mixture. Sometimes, what a person mixes is different for another person. This means that there is no uniformed composition and administration of herbal drugs among users. At times, the composition is allowed to ferment for days thereby increasing the acidity of such mixture. What becomes of people that suffer ulcer is better left to the imagination.

INTERVIEWEE F: I think the problem is about dosage. Unlike orthodox medicine that has a uniformed and well-spelt out dosage and composition, herbal drugs (as food supplements in some cases) do not have a definite unit of measuring the dosage. The issue of overdosage is a misleading factor in the preparation and administration of herbal drugs. The result is that users easily abuse drugs than in orthodox medicine.

INTERVIEWEE G: I just take herbal drugs based on preference rather than considering the problems associated with its use. However, I try to ask questions or read leaflet on the composition don't really care much about it.

INTERVIEWEE H: My main problem is that of overdosage. Overdose can be fatal in the use of herbal drugs because the composition is often unregulated.

INTERVIEWEE I: For me, I consider the outcome of herbal drugs than the problems associated with its use. It is not absolutely harmless but with a caution in the use, it could be adequate

INTERVIEWEE J: Although I take herbal drugs but I know that excess use of herbal drug may cause some adverse effects which may be life-threatening to the extent of causing death.

4. To what extent are you aware of the side effects of herbal drug use?

INTERVIEWEE A: I am fully aware of the side effects of herbal drugs but it has not reduced my intake of herbal mixtures. I only try to ensure that the composition is mild.

INTERVIEWEE B: I am aware of the side effects especially vomiting and toxicity associated with its use.

INTERVIEWEE C: There is no side effect as long as proper care is taken in the preparation and administration of herbal mixtures. I am a practitioner and know how to mix and administer herbal drugs. To me, I insist that the use of herbal drug is without a side effect. In fact, it is easier to have adulterated forms of orthodox medicine than herbal drugs that are obtained from nature.

INTERVIEWEE D: As long as the process is followed, herbal drugs remain the best. The problem is the individualistic approach to the preparation. Mr A may mix water, ripe orange and unripe pawpaw to a cure and Mr B will mix dry gin, unripe orange and a different left to cure same ailment. The result is that these two healers cannot get same result but in cases, where both persons follow same the result, the result is far better than the use of orthodox medicine.

INTERVIEWEE E: I am aware that herbal drugs go with adverse side effects though I have not personally experienced any side effect.

INTERVIEWEE F: The only side effect I am aware is that of vomiting and toxicity which emanate from unregulated composition of herbal drugs

INTERVIEWEE G: I agree that herbal drugs have adverse side effects. Thanks!

INTERVIEWEE H: So far, I have experienced abdominal pains and skin reactions when I take certain herbal mixtures. This, however, has not made me to stop taking herbal drugs outrightly. I only moderate my intake of herbal drugs.

INTERVIEWEE I: As a dealer on *Botrend* herbal food supplements (not in trado-medicine drugs), I don't take nor recommend the use of herbal products to users arbitrarily without doing a clinical examination to reduce the occurrence of side effects of herbal products. For instance (pointing to a computerised machine on the table), I use this machine called Quantum Magnetic Resonance Body Analyser to scan the body

system of herbal drug users. What this machine does is to identify the actual health problems of the users, checks whether the person can take a particular drug due to his health history and then, recommends appropriate drugs for the health problem. By doing this, we reduce the chances of side effects with use of our herbal food supplements unlike the unregulated herbal products.

INTERVIEWEE J: I have read about it on the Internet and I occasionally experience skin rashes after taking certain toxic herbal contents.

To ascertain herb users' exposure to health information on herbal drug use

5. Are you exposed to health information on herbal drug use?

INTERVIEWEE A: Yes

INTERVIEWEE B: Yes

INTERVIEWEE C: Not really depending on the source because I am not literate to read or write.

INTERVIEWEE D: *(Somewhat authoritatively)* I learnt all I needed to know about herbal drugs from my father who was a traditional medicine man (dibia) and such gift of traditional healing runs in our family.

INTERVIEWEE E: I am exposed to health information on herbal drug use. Thanks a lot.

INTERVIEWEE F: Yes

INTERVIEWEE G: Yes

INTERVIEWEE H: Yes I do.

INTERVIEWEE I: Yes

INTERVIEWEE J: Yes. Thanks

6. What is the source of your health information on herbal use?

INTERVIEWEE A: I get health information on herbal use from friends and associates for I mostly make my preferences based on the testimonies of those who have used such herbal products. I equally get information on herbs from those into personal selling in buses and markets but I often question the

authenticity of their claims because I have never use such products or my friends. I think referrals from friends and associates influences me a lot.

INTERVIEWEE B: As a civil servant, I get health information on herbal use through television broadcast though infrequently. I equally listen to radio on news on herbs but I don't really enjoy it perhaps, due to its audio nature. I get most of health information from friends and associates. It becomes because you have depend on testimonies of good effects of these drugs to buy. For me, I can't take a drug no one has taken; it is tantamount to playing with one's life.

INTERVIEWEE C: I prepare herbal drugs so I have reasonable knowledge of herbal drugs but I equally consult other trado-medical doctors to understand other ways of preparing herbs and curing ailments.

INTERVIEWEE D: Information on herbal drug is rooted in my family lineage and I know what type of herb is used for a particular ailment but where an ailment persists after a long time, I consult follow herbal healers.

INTERVIEWEE E: I depend on testimonies of friends and associates who have used such product. I don't depend on mass media for such information at all.

INTERVIEWEE F: I get health information from friends and associates only.

INTERVIEWEE G: I get from television broadcast at time but mainly from friends and associates who have used the drugs and can attest to its efficacy.

INTERVIEWEE H: I get information on herbal drugs from friends and personal selling in buses and public places such as markets, parks and churches.

INTERVIEWEE I: I depend on the testimonies of my friends and associates to use herbal drugs. I occasionally read about herbs in newspapers and listen to health discussions on herbal drugs on radio.

INTERVIEWEE J: I get information on herbal drugs through my friends and associates only. I don't access any of mass media for health information on herbal drugs.

7. Which of the sources influences your choice of herbal drugs most?

INTERVIEWEE A: Referral method by friends and associates

INTERVIEWEE B: Information from friends and associates and the use of television in dissemination of health issues on herbal drug use.

INTERVIEWEE C: Consultations with follow herbal drug practitioners

INTERVIEWEE D: Consultations with other practitioners

INTERVIEWEE E: Information from friends and a bit of news from radio health programmes.

INTERVIEWEE F: Information from friends and associates based on their testimonials of the usefulness of such herbs.

INTERVIEWEE G: Information from friends and newspaper

INTERVIEWEE H: Referral method by friends and associates and sometimes, through television broadcast

INTERVIEWEE I: To me, I get health information from television, radio, newspapers and even the Internet but referral method influences me a lot. This is because I use these herbs because others have used and testified to the efficacy of such drugs.

INTERVIEWEE J: Referral method only.

To ascertain herb users' health beliefs about herbal drug use

8. Do you know of health beliefs associated with herbal drugs?

INTERVIEWEE A: No

INTERVIEWEE B: No

INTERVIEWEE C: Yes

INTERVIEWEE D: Yes and it is essential in efficacy of drugs.

INTERVIEWEE E: No

INTERVIEWEE F: No

INTERVIEWEE G: No I don't believe in that.

INTERVIEWEE H: No oooooooooo! Herbs are natural on themselves.

INTERVIEWEE I: No. It does depend on any obnoxious belief.

INTERVIEWEE J: No

9. Do you check for NAFDAC registration number on herbal drugs before using such drug?

INTERVIEWEE A: No, I hardly check for NAFDAC regulation number.

INTERVIEWEE B: I do but it doesn't stop me from taking herbal drugs without NAFDAC registration number.

INTERVIEWEE C: No, I don't use NAFDAC registration number on my herbal product because we do not synthesize our drugs but they are extracted from nature and prepared in its natural forms.

INTERVIEWEE D: Simple no (*He retorted*)

INTERVIEWEE E: Yes

INTERVIEWEE F: No

INTERVIEWEE G: I don't check for NADFAC registration number.

INTERVIEWEE H: No

INTERVIEWEE I: Yes. This is because our *Biotrend* herbal food supplements are registered with NAFDAC.

INTERVIEWEE J: I don't check for NADFAC registration number occasionally. The reason is that I prefer taking these herbs in their natural forms.

10. How often do you check NAFDAC Number on herbals before use?

INTERVIEWEE A: Not at all

INTERVIEWEE B: I do but not too regular.

INTERVIEWEE C: No

INTERVIEWEE D: Not at all

INTERVIEWEE E: Yes I check always before using herbal drugs

INTERVIEWEE F: No

INTERVIEWEE G: I don't check at all. I just take herbal drugs without such routine checks.

INTERVIEWEE H: No

INTERVIEWEE I: Yes and regularly too.

INTERVIEWEE J: Yes but not too frequent.

To determine the correlation between available health information and user health beliefs in influencing herbal drug use in Southeast Nigeria

11. Are there correlations between health belief and use of herbal drugs?

INTERVIEWEE A: There is oooooooo! There is a correlation between user health belief and effectiveness of herbal drugs. This means that the effectiveness of herbal drug is derived from the belief attached to it by the potential user. It is not per se about health information but that the user's belief plays significant role in its efficacy.

INTERVIEWEE B: I don't think that user's health belief is a factor because these herbs derive their potency from the naturalness of their plants; not a case of attaching obnoxious belief to them.

INTERVIEWEE C: (Laughs) You see, there is no way both cannot relate because it is information that tells you the composition and then, faith is required for a drug to be healing-worthy.

INTERVIEWEE D: You see, for these herbs (*pointing towards a heap of herbs*), you must combine your faith with available information. Remember that information here, may not necessarily involve the use of mass media but at least, interpersonal communication in which two or more individuals discuss on the efficacy of herbal drugs they have taken before. I can rightly say that both are inclusive and mutual.

INTERVIEWEE E: There is no correlation because if adequate health information about herbal drug is given to the user and he adheres strictly to instructions, then the effectiveness of the herbal drug is largely dependent on application of instruction than health belief.

INTERVIEWEE F: Both can apply because there is a certain amount of faith that is required of herbal drug user before a drug can be effective. It is not just having adequate health information about the product but the user also believes in the efficacy of such drug.

INTERVIEWEE G: I think there is no correlation because a user with adequate health information on herbal drug may not have any special belief for the drug to be efficacious.

INTERVIEWEE H: No. The efficacy of herbal drug is derived from correct composition and adequate health information on mode of administration and knowledge of likely side effects. It does not require a special belief for these drugs to be efficacious.

INTERVIEWEE I: There is no correlation between adequate health information and user's belief because adequate health information is enough to bring about efficacy and not user's belief. Do you know that if I have faith but do not take herbal drugs according to prescription that I will not be alright? No, it is better to get adequate information instead of health belief.

INTERVIEWEE J: Both adequate information and users; belief correlate though not in same proportion.

12. Are herbal drugs effective when the user attaches some beliefs to its use?

INTERVIEWEE A: Yes oooooooooo!

INTERVIEWEE B: No; herbal drugs derive their potency from naturalness of your plants.

INTERVIEWEE C: There are some beliefs associated with the use of herbal drugs especially the aspect that supports that healing claims of these drugs are derived from the person who administers such drug. It translates that only a traditional medicine man (*dibia*) through incantations makes these herbs efficacious.

INTERVIEWEE D: The effectiveness of herbal drug is dependent on belief system. The healing power is rooted in one's lineage and transmitted from generation to another. This means that a herb's healing powers are deposited in the man administering them. It equally involves some aspects of fetish incantations to seek the assistance of spirit who make these drugs efficacious.

INTERVIEWEE E: No, they don't correlate at all.

INTERVIEWEE F: No, beliefs don't make herbal drugs effective. The effectiveness is dependent on the mixture and adequate information.

INTERVIEWEE G: Herbs do not derive their potency from users' belief especially when the belief is obnoxious. Herbs derive their potency from nature and a careful adherence to information on usage.

INTERVIEWEE H: No it does not depend on belief of the users but on its natural extraction and potency. Available information also adds to the efficacy because if the user adheres to the instruction on usage, then the drug will be efficacious.

INTERVIEWEE I: Herbal drugs do not depend on users' belief to be potent. It depends on right composition and body system of the user.

INTERVIEWEE J: There is a correlation between effectiveness of herbal drug and users' belief. Let me explain well. Some of the herbal drugs are products of traditional mixtures usually by means of divination. This means that a user's belief is important for the drug to be efficacious. If the administration demands killing a cock for a ritual, then if such ritual is done, there is a tendency that the drug will be ineffective. This explains that among Africans especially herbal drug users in Southeast Nigeria, one's belief is as important as the herbal drug itself. In fact, both factors correlate in unequal proportion.

13. Do you think herbal drugs are potent because they are administered by native doctors or diviners?

INTERVIEWEE A: No I don't think so.

INTERVIEWEE B: No for the effectiveness of herbal drugs is not dependent on only when it is administered by native doctors or diviners. They can be extracted, processed and administered by anyone with knowledge of herbs.

INTERVIEWEE C: Yes. This is because as I earlier said that healing power is transmitted along lineage. This means that sometime only those with such generational gift are capable to prepare and administer such drugs. However, this rule does not apply in the case of administering herbal food supplements which are partially synthetic.

INTERVIEWEE D: Noooooooo! The preparation and administration of herbal drugs is a gift and only those with such gifts can administer them effectively. What I am saying is that for the fact that I am a native doctor, I have natural gift of making these herbs efficacy which may include applying some incantations to them.

INTERVIEWEE E: There is no correlation because the potency is dependent on the composition of herbal mixture; never on the diviner or medicine man.

INTERVIEWEE F: Both can apply because the efficacy of herbal drugs is dependent on faith and the person that administers it; for instance, in the case of traditional bone-menders you discover that not everybody can do and it is a nature's gift to certain individuals who mend broken bones even when orthodox medicine could not heal it.

INTERVIEWEE G: There is no correlation because a user the traditional doctor or diviner has no direct effect on the efficacy of herbal drugs. They may say some incantations but these incantations do not have any effect on the potency of herbal drugs.

INTERVIEWEE H: No. As I earlier stated, the efficacy of herbal drug is derived from correct composition and adequate health information on mode of administration and does not require a special belief for these drugs to be efficacious.

INTERVIEWEE I: There is no correlation between adequate health information and user's belief via the person that administers it. For instance, I am distributor of *Biotrend Herbal Product* and my job is to clinically examine people before administering appropriate drugs. My person has no effect on the herbal product but the drug itself.

INTERVIEWEE J: Inasmuch we do not see the indirect effects of incantations or obnoxious rituals on the effectiveness of herbal drugs, the truth is that both correlate but not in same proportion.

APPENDIX V: SAMPLE PHOTOS OF IN-DEPTH INTERVIEW IN SOUTHEAST NIGERIA



The Researcher with Mrs Rachael Ezenwa before the interview on herbal drugs



Mrs Rachael Ezenwa showing the researcher some herbs



Mrs Rachael Ezenwa demonstrating herbs to the researcher



The Researcher with Nze Emma Ubabuko Oledibemma explaining the manner of preparation of herbal drugs



Picture 2: The Researcher with Nze Emma Ubabuko Oledibemma answering questions on herbal drugs use



Mr Afam Raymond Sidney answering questions on Biotrend herbal supplements



Picture 3: The Researcher with Mr Afam Raymond Sidney answering questions on herbal drugs

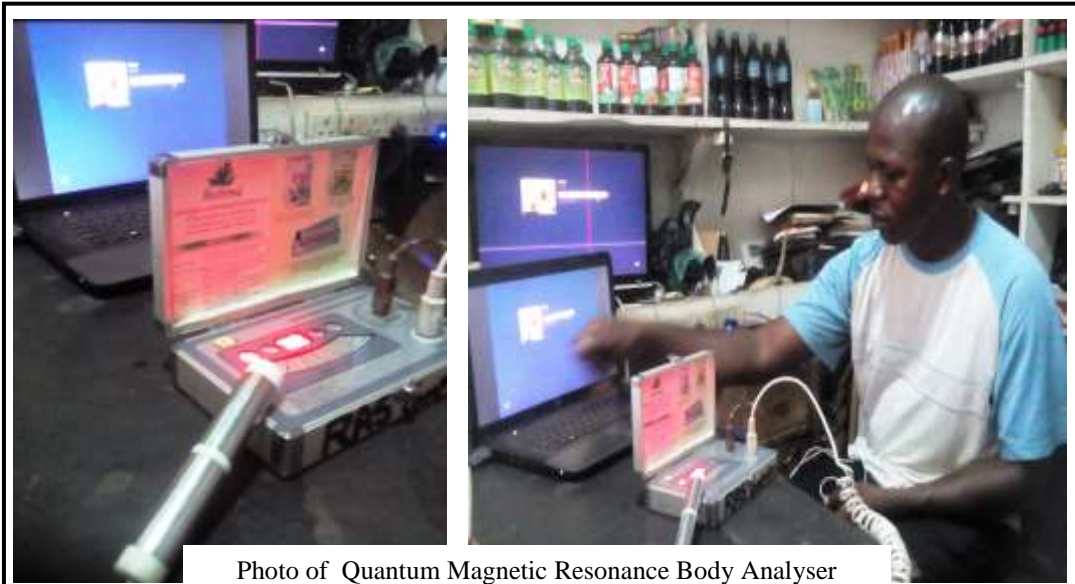


Photo of Quantum Magnetic Resonance Body Analyser



Picture 4: Demonstrations with Quantum Magnetic Resonance Body Analyser