

Herbal Medicine in Nigeria: A Practice at the Clinical Crossroad

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Abstract

Nigeria has one of the most varied ecosystems and expanse bio-resources and biodiversity. Its biodiversity is an important source of food, medicines and natural products. The natural products form the basis for varied traditional medicine systems that have been in existence and sustained the people for thousands of years. The traditional medicine practices of Nigeria are as diverse as the people of Nigeria which is made up of more than 300 ethnic communities.

The traditional medicine practice systems of Nigeria is bedevilled with the double throng challenges of inadequate documentation and lack of clinical evidence bases for use since their uses by many cultures have not been properly and extensively documented, and various practice centres fall short of meeting the basic standard requirement for clinical practice. It is right therefore to point out that the wealth of Nigeria's traditional medicine knowledge and its associated rich practices lack structured evidence based systems to support clinical claim for integration into the mainstream health system. In this regard, only a few if any such as the PAX herbal clinic is a model for emulation.

This shortcoming is quite critical if we consider that Nigerian Traditional Medicine systems and medicines play vital roles in the healthcare delivery of the people especially at the level of primary healthcare. Also, that it is a vital source of natural product leads for the development of the most effective drugs for the treatment/management of a variety of human ailments. The import of this shortcoming becomes glaring if we reflect on the report pointing out that the global trend for incorporation of traditional medicine into health systems was on the increase globally. And also that such use is in the light of chronic ailments which conventional medicine is incapable of treating.

This paper will attempt to discuss the critical challenge of integrative medicine –**herbal medicine at the crossroad of clinical practice in Nigeria**- in a quest for a mainstream strategy for acquiring evidence bases and translation of Nigerian Traditional medicines to clinical care.

Key words: Herbal Medicine, Traditional Nigerian Medicine, Translational Medicine, Clinical Research

Introduction

Traditional medicine plays the critical role of grassroots provision of clinical care based on the overall concept of natural and holistic healing, psychosocial community welfare, economic growth and wealth creation. Researchers, by exploiting modern research tools serve as partners in developing the traditional medicine conceptual framework and making it adaptable to modern health practice.

Therefore, in going forward let us attempt to bring into perspective the concept of the Traditional Nigerian Medicine (TNM), the associated mainstream strategy for acquiring evidence bases for its use and the core challenges of translating herbal medicines to clinical practice.

Herbs, Traditional Medicine Knowledge and the Concept of health in Nigeria

Every society has development approaches, system or body of knowledge and practices for health and wellbeing. In most cultures, concept of illness and health embraces the totality of an individual,

physical, social, emotional, psychological and spiritual well being within its total environmental setting. Currently, there are two dominant concepts of health care system-Traditional Medicine and Western Medicine.

Traditional Nigerian Medicine is a form of health care system that is Traditional (Known, practiced and evolved by Nigerians over millennia), indigenous (knowledge base and resource belongs to our people), folk (in our culture, believes and faith), communal (collectively owned) and at the centre of national economy. There may be other variations in definition depending on biases and experiences of the authors, the way various practitioners have professed their art and socio-cultural diversity of various ethnic groups. These differences in practices across ethnic and individual groups have tended to inhibit the development of uniform national traditional medicine culture. Nigeria has over 300 diverse ethnic communities and traditional medicine practice in these communities is equally diverse.

WHO in 2000 in providing a global view of traditional medicine tried to put this health care systems in uniform perspective by describing Traditional Medicine as *“the sum total of the knowledge, skills and practice based on the theories, belief and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses”*. In other words, the form and content of any Traditional Medicine at a given time is a product of the historic experience of the communal entity or focus population with disease and illness within a social and ecological context. This healing art reflects values and practice, both indigenous and foreign, which have been incorporated and adapted locally over the centuries.

A discussion of indigenous traditional medicine in contemporary Nigeria must of necessity first be located within the historical and global context in order to appreciate the social, political and economic forces, which have coalesced to give a particular shape to these modes of healing among our people. Although our indigenous medical practices have existed for thousands of years, conflict of interest in its continued knowledge research and development began essentially when European cultures established contact with ours around the fifteenth century. In the pursuit of their objectives, some aspects of our local cultural practices including Traditional Medicine were seriously distorted

Over the years, these early negative perceptions of our traditional social life have persisted not only among Europeans but also among the so called educated Nigerians and particularly in the medical profession, (Emmanuel, 1973; Ademuwagum, 1973). With this background, our educational system classed the study of indigenous medical beliefs and practices with research on religion anthropology and magic rather than as a foundation for medical education as practiced in China and the oriental nations.

Based on this approach, the Traditional Nigerian Medicine Practitioner (TNMP) is depicted as routinely engaged in ceremonies and rituals to restore persons to states of spiritual, social and psychological harmony. The emphases here are on those aspects of traditional medicine that differed from Western views of illness causation and treatment. Sadly, this perception appears to be the impression of many a practicing conventional medicine professional even today in the 21st century and thus the greatest obstacle to clinical translation. This evolutionary trend coupled with the impact of globalization of macro-economic policies and programmes have had significant influence on the research and development of our traditional health systems and its related bio-resource and raw materials.

Since the 1960s, a new realization has, however, dawned on the Nigerian research community and indeed on many other post-colonial states in the developing world that the colonially-inherited health care system is not only expensive but also does not meet the health needs of the majority of the people, Harrison (1973). There is also the growing appreciation that all people have modes of dealing with their health problems and therefore, health policies and programmes must be made to operate meaningfully within a ‘medical pluralistic milieu’.

Added to this consciousness is the global renaissance towards traditional medicine (especially herbal medicine) as attested to by the WHO in the report that there was *“an increasing global trend to incorporate traditional medicine in the healthcare systems of both developed and developing countries to combat chronic ailments for which conventional medicine has not proved efficacious”*, (WHO, 2013).

Consequently, this has provided our government with the elixir to explore ways of linking indigenous healing practices with the biomedical system. This also gives clinical researchers the opportunity to seek the needed translational evidence for integration of herbal medicines in the mainstream healing system.

Herbal medicines at the crossroad of clinical practice -fallout of the NDE approach

The natural product single entity approach or New Drug Entity (NDE) of 'white crystalline powder' is a drug discovery model that has placed the traditional medicines' development in Nigeria at a disadvantage for a variety of reasons (Orgah, 2008). A few of these reasons are:

a) Proof requirement

The empirical data for Natural products drug discovery in Nigeria is from Traditional Medicine. However, the main obstacle to the use of traditional medicines is the proof requirement that the active components contained in medicinal plants are useful, safe and effective. This is highly required to assure the medical professions and the public regarding the use of traditional medicines as drug alternatives.

Unfortunately, we either are not able to conduct needed research that will provide scientific proof of pharmacology or lack the technological, economic, legislative or institutional framework for research and training activities in Natural products drug discovery. As a result, the quantity and quality of safety and efficacy data are far from sufficient to meet the gold standard for the use of herbal medicines.

b) Differing healing principles between TM and orthodox medicines

Traditional Nigerian Medicine operates on a deep seated holistic health philosophy of disease prevention rather than cure. Traditional Nigerian Medicine approaches healthcare through a variety of techniques and methods that are broadly based on the use of herbs/health foods, which are exploited as nutraceuticals, adaptogens or immune system stimulators/boosters.

While pharmaceuticals are generally based on a single active ingredient, traditional therapies are based on the philosophy that herbal medicines affect the system via a synergistic combination of effects of the natural products in the herbs. In some cases TM therapies may not contain any ingredient effective against the disease by its direct causative pathological pathway but could be wholly directed at the reinforcement of organs and tissues to resist the disease. This fundamental approach to health by the Nigerian healer makes his system of cure unique and crying for evidence.

c) Inadequate research structures

Although research in chemistry and bioactive components of herbal traditional medicines has been ongoing in the country, a systematic and concerted approach to this activity cannot be sustained for want of sophisticated equipment and high-cost chemicals. Much of our research has been academic in nature and directed at professional elevation.

Determining and standardizing, the level of ingredients in nutraceutical and adaptogenic herbal medicines, requires a sophisticated ability in analytic chemistry. Not many laboratories in Nigeria can do this, and in the private sector there aren't facilities, which can perform these tasks either. Many R&D institutions and Universities in the country do not have pilot process facilities and are therefore unable to pass on their R & D findings to the industry. Since little or no pilot plants exist, it is not possible to establish the process technology required for upgrading the research findings to industrial scales.

It is heart-warming to note though that these challenges are not peculiar to Nigeria alone but a global and topical challenge which has enunciated international response by the health research community. Such responses have evolved new research models for acquiring the evidence bases for use of these medicines and their subsequent translation to clinical practice.

Moving Herbal medicines from the crossroad: Exploiting the tools of translational medicine.

Herbal medicines have found rebirth in the healing sphere (Ameh et al., 2012; WHO, 2013), owing to public demand and based on successful psychometric evaluations using various rigorous study designs of Randomised Controlled Trials (RCT).

Globally, clinical researchers have taken up the challenge of providing clinical evidence for use. This is evidenced by the growing volume of herbal remedy clinical research conducted in the UK, US, Australia, New Zealand, and Canada as reported by Bubela et al., (2008) who noted also that clinical trials of herbal remedies were more negatively reported by newspapers than clinical trials for pharmaceuticals and indicated that media coverage fails to provide “the public with the information necessary to make informed decisions about medical treatments.” They further suggested that this negatively impacts the medical research community.

Noting the peculiarity of herbal medicines and the needed interdisciplinary structure of its evidence research (Wang, et al., 2011), clinical researchers have developed various novel approaches (Jia et al., 2013) to effectively translate this classic cultural medicine into a global clinical practice with measurable safety, quality and efficacy despite negative report. The evidence climate of herbal medicine and other complementary and alternative medicine have thus changed since the last decade when Frenkel and Borkan (2003), reported that “Despite all the demand and interest in CAM, there remains a distinct lack of evidence regarding efficacy”.

In Nigeria’s peculiar situation, due to the rising cost of medicines and the poor performance of existing medical approaches in the face of new health challenges, Nigerians are compelled to look inward and revisit our traditional knowledge in medicines, science and technology especially our indigenous herbal medicines and manual manipulations such as massage therapy, bone setting and phyto-medicines even in the face of technological difficulties. Meanwhile, clinical practice in the 21st century has become an active research science exploiting the laboratory and field data generated by biomedical scientist to provide the needed translational evidence basis for the utilisation of medicines, medical devices and other healing strategies.

Translational medicine is a research dissemination tool for advancing gains of medical research to populations through clinical research. It is an integrative socio-political, clinical and basic science for improved and efficient outcomes in patient care. It is currently considered globally as a very useful tool for evidence based practice of conventional medicines. This paradigm is also an emerging trend in the development and practice of traditional medicines generally and herbal medicines in particular as evidenced by various works (Graz, *et al.*, 2007; Zhang *et al.*, 2012; Xu *et al.*, 2013; Singh *et al.*, 2014).

A critical observation of the Sino-American symposium held in 2012 (Qian, *et al.*, 2012), on clinical and translational medicine was that translational medicine was an emerging and growing field working for improved and efficient outcomes in patient care. Translational medicine research is also an emerging trend in Traditional Medicine (Qian, *et al.*, 2012). According to Frenkel and Borkan, (2003), the need to establish a method for integrating therapies of Complementary and Alternative Medicine (CAM) with orthodox medicine practice is sacrosanct. Therefore, Integrative Medicine, the combination of orthodox medicine and traditional medicine therapies with proven evidence of safety and efficacy is proposed as a useful clinical strategy. Researchers have reported that Integrative Medicine is attracting an increase of attention among clinical researchers, Verhoef, *et al.* (2006).

Although a large gap exists between traditional medicine knowledge and its translation to clinical practice (Brownson *et al.* 2006), the growing evidence arising from Nigerian herbal medicines cannot be ignored and the nation behoves it on biomedical scientists to carry out the necessary research and generate the needed evidence bases to integrate our herbal medicines into mainstream healthcare, make them solutions to global health challenges and develop new biological products as resource for income and wealth generation.

In this era of evidence-based medicine coupled with advances in clinical research targeted at the improvement of clinical practice in the care of patients, systematic application of translational research remains a burning global issue in both conventional and herbal medicine practices. There is the growing global demand for quality care and a greater interest by patients in personal health issues

as evidenced in Australia, UK and USA (Shergis *et al.*, 2013). Clinics, clinicians and clinical researchers are thus faced with the challenges of acquiring the needed evidence for use of herbal medicines and other traditional medicine practices, (Ernst, *et al.*, 2004; Verhoef, *et al.* 2006).

The core focus in this regard according to Sun, *et al.*, (2011), would be the reverse pharmacology principle of taking clinical data from bedside to laboratory and back to the bedside. This concept of reverse pharmacology is needed in other to acquire the necessary clinical evidence to convince clinicians to prescribe herbal medicines to patients. Willcox *et al.*, (2011) used this approach and successfully developed an anti-malarial phytomedicine in Mali. The evolution of this approach is therefore a necessity in other to move herbal medicines from the crossroad. Herbal medicine researchers and herbal clinics must therefore strive to achieve research structures that allows for data inflow from the clinic and pharmacovigilance outlets.

Also, herbal clinics must establish avenues for deliberate clinical research on its herbal medicines through the design of study protocols that meet global gold standards in Clinical research. Graz, *et al.*, (2007), proposes low cost strategies for carrying out such studies such as “the retrospective treatment – outcome population survey, the prognosis – outcome method ..., and the dose – escalating prospective study.” The goal of such an effort would be to acquire the needed evidence for integrating herbal therapies of proven safety and efficacy into mainstream healthcare and clinical practice.

The necessity for adopting a reverse pharmacology approach stems from the unique nature of translational research of herbal medicines as against orthodox medicines. Translation in orthodox practice is fairly straightforward as it attempts to acquire data to transform biomedical research into clinical practice. The critical challenge of translation in herbal medicines lies in the fact that the practice have to be scientifically re-evaluated and revalidated to establish actual efficacy and safety, Zhang, *et al.*, (2012). Translational herbal medicine strives to translate current knowledge into clinical practice and render the practice repeatedly generalizable as a modern medical practice and this involve improvement of quality, standardization of treatment protocols and technology based modernisation, (Zhang, *et al.*, 2012).

It is noteworthy that herbal medicines, if appropriately translated into clinical practice would aid the nation in achieving the millennium development goals.

Conclusion

Herbal medicines should have been called the mainstream considering that it is embedded in our natural history and is patronized by the larger population the world over. However, because the history of herbal medicines has been bedevilled with challenges of evidence and modernization by use of modern technology, it has remained at the back bench of medical practice. Application of modern tools of clinical research in evidence mapping and translational studies will render it applicable in clinical practice as clinicians will then poses the empirical bases for their prescription and utilisation.

In this era of global economic downturn, looking to nature as sources of health for the most challenging and “chronic ailments for which conventional medicine has not proved efficacious” (WHO 2013), will not only provide cheap primary health for the lowest ebb of society but encourage communities to take steps in preserving their biodiversity which in turn will safeguard our environment and reduce health disorders associated with poor environment. For low income nations such as Nigeria, embracing the strategy of a large-scale clinical research on our many herbal medicines will enhance and stimulate national self-reliance in healthcare which is critical to national economic growth, job and wealth creation. This will make the nation not only relevant but competitive in global drug development economies.

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