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**Sustaining Indigenous knowledge through the digitization of information on Herbal
Medicine in Medical libraries in Nigeria: Problems and Prospects.**

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Abstract

This study examined the concept of herbal medicine and the need for supporting Indigenous knowledge through the digitalization of information on the accumulation and transmission of herbal healing practices from generation to generation. It examined the relevance of digitizing herbal medicine information in order to sustain and conserve this unique information. The digitalization of library health information also raises readers' attention. In addition, the organization is responsible for permanent storage and documentation of information resources, in particular health information. This research examined the strategic importance of medical libraries. It described how medical libraries could be crucial in digitizing indigenous herbal knowledge to protect them against the threat of extinction. The article also emphasized the challenges and potential of digitizing Herbal Medicine Information in Nigeria's medical libraries and presented practical solutions.

Keywords: Digitization, Herbal Medicine, Indigenous Knowledge, Information, Librarians, Libraries, Medical Library.

Introduction

Indigenous knowledge can be characterized as knowledge exclusive to the traditional community gathered and passed on from generation to generation. Nakata et al. (2005) have described indigenous knowledge (IK) as knowledge, innovation and practice of indigenous and local populations around the world which has evolved over a century and which has adapted to local culture and environment. This information is transmitted through word of mouth and cultural rituals, conventions, beliefs, proverbs from generation to generation, and has for many centuries formed the basis for agriculture practices and a wide variety of other actions that support society and its environment in most of the world. The importance of this knowledge could build cultural identity and improve social and development objectives. These could include the arts, agriculture, crafts, medicine, music, management of natural resources, theater and disaster management.

This expertise has been acquired and passed on from past generations via decades of experience. Usually indigenous knowledge (IK) and practices are not documented and rely on oral and memory transmission. Often this dependence led to distortions. IK is notably relevant for the development of the arts, music, language, agriculture, medicine, crafts, theater and the management of natural resources. It is then necessary to document and transmit indigenous knowledge in order to achieve its advantage where relevant. Nigeria must participate completely in the worldwide exchange and dissemination of information to promote cultural, social, economic and medical development.

Indigenous knowledge and practices meet the requirements of civilization without damaging the environment so that future demands can be sustained. It is utilized to support the community and its culture and to preserve the genetic resources required to the tribe's continued survival (Lambert, 2003). The indigenous peoples of different civilizations live on the basis of indigenous knowledge and customs while efficiently and sustainably managing their natural resources, adapted to their requirements and within their constraints. In this context, Okwor et al (2010) considered it impossible to overemphasize the value of herbal medicine due to its role in supporting life in rural areas. It is very vital that herbal medicine is integrated into formal education to ascertain if it can cause any medical changes to problem solving.

Herbal medicine is the oldest form of health care system tested over time and is often known as ethno-medicine, folk medicine, indigenous healing, supplementary medicine, and alternative medicine. Abdullahi (2011) stated that it was an old and cultural therapy strategy used by human beings to deal with many life and survival difficulties. Different societies have thus

created different indigenous treatment systems that embody the broad idea of traditional medicine, such as Chinese, Indian, and African herbal medicines. This explains why the term is not defined generally. It is clear that most people still use the herbal health system, not just in Africa, but worldwide (Cook, 2009). Herbal healers include grasshoppers, diviners, curatives, native surgeons, etc. All these healers need information to assist their work.

From the last centuries on, herbal medicines have played an essential part in human culture. Medical practice shows the medical knowledge that different cultures have improved over the years before the era of modern allopathic or homeopathic medicine (Alam et al., 2015). Alam stated that the usage of herbal medicine to cure disease is practically ubiquitous among non-industrialized countries. Uncertainties have developed in terms of the availability, accessibility and cost of health information amongst and in communities worldwide. That is why it is very necessary to insert information on herbal medicine in our everyday library preservation of information and documentation.

There are other sorts of libraries, but this study concerns medical libraries since it is a specific library dealing with medical information gathering, organization, storage, digitalization and communication. Any library has the primary responsibility of documenting, preserving and disseminating information, especially indigenous knowledge. Libraries and archives are traditionally the guardians of knowledge and cultural heritage. They contain drawings, paintings and other artifacts, including manuscripts, documents, books; AV articles, etc. Libraries are set up to support the institutions of their parents. During their routine responsibilities, they help and cooperate with their parent institution's host community. Libraries gather information resources from several domains in carrying out their routine activities. They document, maintain original information, repackage and communicate information to the users. How much libraries can accomplish this depends on the circumstances or obstacles they face.

Libraries in Nigeria and everywhere in the world face major changes because of media generating, transmitting, disseminating and archiving information due to the increasing availability of electronic formats (Igwesi, 2010). There is no doubt that electronic information is a potential asset and may be employed vigorously in every situation. In the information processing and service environment in libraries, the introduction and spread of electronic formats have made a significant difference, particularly following the rise of the web and the internet as a dominating means and stock of electronic information resources. Librarians function as facilitators to offer the right user with the correct information at the right moment (Jeevan, 2007). The library has been accessed by the users by the emergence of web-enabled information

resources such as e-journals, e-books and e-reference resources and their access across networks. Digitalization is the process of transforming analog signals or information in a digital format which computers or electronic devices can understand. When transforming information, such as text, images or voices and sounds, into binary code, the phrase is employed. Obidike (2011) has defined digitizing as the process by which classic library items can be collected and manipulated in the form of books and papers and converted into electronic form.

The digitalization of health information in medical libraries might increase readers' interest. In addition, organization and permanent preservation and documentation of information resources, especially health information, should be taken care of. Libraries are different and are used to perform special works for employers, for example medical library for the purpose of serving the medical establishment, school libraries are a library for primary and secondary school pupils, academic libraries are libraries that are used in universities, collaborations, etc. This is the kind of herbalists can freely utilize to document their medicine and other information.

In recent years, herbal medicine has become increasingly interested in its importance for the public health of developed and developing countries. Traditional medicine's good attributes include diversity, easy availability, high continuity, relatively low cost, low level of technical inputs, relatively small negative effects and increasing economic importance. In this setting, the integration of herbal medicine into public health is crucial to achieve the objective of better access to health knowledge.

Poor or insufficient digitalization, provision and use of herbal medicine information present many difficulties in consulting such material in Nigerian medical libraries in order to enhance the delivery of primary care in Nigeria. The question is what would be done in Nigerian public libraries to improve the usage of herbal medicine information? This is why public libraries are crucial to everyone in every corner of the world.

Review of Literature

Indigenous knowledge has a broad understanding of sustainable living. However, the practical features of everyday life of indigenous knowledge have been disrupted by formal education systems and substituted by abstract knowledge and academia. There is a serious concern now that much Indigenous knowledge and significant knowledge about ways of life will be lost (Ugwu & Diovu, 2016). The provision of health care should not be overemphasized in this circumstance. That's why Okwor et al (2010) said life is more essential than wealth. Herbal medicine is the most cost-effective and intrusive medicine. Ekere & Ekere (1991) highlighted that indigenous knowledge is really a key element of development and that many Nigerians

recognize how indigenous knowledge is linked to development. He also pointed out that, over the past few years, policy makers, development planners and the general public are becoming more and more aware of the important role indigenous knowledge can play in promoting sustainable development and have the potential to save lives, improve food security and increase income. Given that indigenous knowledge is crucial in development, it is generally urged that it should be consistently and systematically collected and documented. Indigenous wisdom has been and continues to be utilized in so many fields. Indigenous knowledge, according to Makinde & Shorunke in 2013, is crucial for health systems as they have determined that both the human beings are somatic and spiritual, as a result of the supernatural reasons for the fury of ancestral or bad spirits. It is therefore not only the disease kind that is taken into consideration, but also the psychological and sociological aspects.

Herbal medicine is an alternative treatment approach component and comprises the use of various herbs, plants and extracts in the treatment of diseases (Jiraqe, 2012). Herbal medicines are thought to be one of the most comprehensive, effective and safe treatment choices and are even recognized as one of the benefits of indigenous knowledge practice worldwide. Herbal medicine is an important alternative component of disease cure solution. It replaces traditional and even medical disease solutions; it replaces different diseases for prevention and treatment. Herbal medicine can be referred to as phototherapy, herbal medicine or botany (Jiraqe, 2012). Ayurvedic herbalism, traditional Chinese herbalism and western herbalism are the basic systems of herbal medicine. Herbal medicine is one of the oldest methods of solution for the treatment of psychological and physical diseases and for general health care. Nature has gifted us with various plants that combine or take them alone to cure diseases with extraordinary medicinal characteristics. Some plants include beneficial components in the form of natural chemicals that are used to repair several physiological abnormalities leading to health concerns. Herbal drug can be used as liquids, solid tablets, granular forms, teas, oils or ointments.

By definition 'traditional' use of herbal medicinal items implies considerable historical use, and this is certainly true of many products sold as 'traditional herbal medicinal products.' A considerable section of the population in many underdeveloped nations is based on traditional practitioners and their medicinal plant armaments to address their health demands. Whereas orthodox medicine can exist side-by-side, herbal medicine has often retained its popularity for historical and cultural reasons. Such products have become more commercially available, particularly in industrialized countries.

Traditional herbal medicine, a recognizable cultural treasure in many communities around the world, encompasses all kinds of folk medicine, unorthodox medicine, and even any form of treatment which is a common or ethnic group tradition (Adesina,2014). Herbal medicine is defined as the total of all knowledge and practices, whether or not explained. The World Health Organization (1976) added that it is used for the diagnosis, avoidance, and disposal of physical, mental, or social imbalances based solely on practice and the observations passed on from one generation to another, whether orally or in writing. Most herbalists use fresh herbs. These plants are picked when accessible and usually stored via desiccation to prevent moisture when seasonal plants are to be used. The first medications utilized by prehistoric men were herbs. They consequently belong to all cultural traditions and have contributed to the establishment and growth of herbalism in Nigeria. Herbalists use herbs, such as medicinal plants or parts of medicinal plants—all roots, twigs, leaves, stem bark or bark, flowers, fruits, seeds, but also animal parts, all animals—snails, nibbles, camels, tortoises, licks etc., in some cases.

In 1992, the Western Pacific WHO Regional Office requested a panel of specialists to draft criteria and general principles for the research of herbal medicines evaluation (WHO, 1993). This organization acknowledged the importance of medicines for the health of many people around the world, saying that "Some herbal medicines have resisted scientific experimentation, while others are used solely to protect, restore or improve health for traditional reasons. Although the expertise gained from their use over the years must not be overlooked, most herbal medications need yet to be examined scientifically. In order to promote indigenous health care for the whole public, the acquisition, preservation and dissemination of information on herbal medicine in the libraries would not be overemphasized.

"Libraries, in particular medical libraries, have been the appropriate anchor partner in programs related to indigenous knowledge system because of the stability of their position both in the community and within the government's structure through which they have been established," said Greyling and Zulu (2009). Many programs have been launched nationally and internationally to assure recording, preservation and dissemination (Magga, 2005). These include the Local and Indigenous Knowledge System (LINKS), which was set up by the United Nations Education, Science and Culture Organization in 2002, which works to promote awareness of their expertise on the local environment and to strengthen their role in biodiversity management with indigenous knowledge holders. The documentation of indigenous knowledge in databases and websites is vital, according to Moahi (2012, for establishing pre-existence and deterring

bogus intellectual property claims. Indigenous knowledge should be explicitly articulated in databases to ensure its correct application.

Many libraries acknowledge indigenous knowledge as a vital source of information for development. The evolution of services as pointed out by Nakata and Langton also requires new disciplines, technologies and partnerships. Indigenous peoples, especially young people, have become unable to access the channels for sharing Indigenous knowledge because of their modern reliance on written words and the lack of facility in indigenous languages. However, as libraries have not focused on that field, Indigenous communities can assist in managing and preserving indigenous information by contributing collection, organization, storage and retrieval resources and skills. Indigenous knowledge is significantly different from orthodox knowledge and needs to be managed in ways that can challenge conventional procedures.

Okore et al (2009) noted that libraries progressed on paper and digital preservation of local culture and promoted information interchange. Digitalization is the process of transforming analog signals or information in a digital format which computers or electronic devices can understand. When transforming information, such as text, images or voices and sounds, into binary code, the phrase is employed. Obidike (2011) has defined digitization as a method by which indigenous knowledge bibliographic resources can be preserved and handled in books and papers and converted into electronic forms. Computer invention and internet installations appear to have brought new obstacles for librarian practice. The use of computers in libraries seems to gather momentum throughout the world. It has led to the formation, in certain universities now, of a separate subject of study, a virtual library, even up to doctoral level. The digitalization of libraries has a lot to do with the library profession. Digitalization of libraries has become part of librarians' work. Most libraries are digitalized.

There are three main reasons for digital efforts: (i) preservation of endangered library materials is necessary, (ii) efficiency improvements to searching information processes and (iii) digitalization enhances access to library resources. Most of the libraries digitalize materials, such as old manuscripts, research projects, photography pictures, analog maps, non-live music recordings, official gazettes from government and various other historical records. Digitization is useful in the conservation of valuable materials. The electronically accessible quality digital photographs will reduce wear and tear on fragile things.

Herbal medication advantages

Herbal medicine has many advantages, one of which is not interference with the natural process of cure of the body. Additional benefits are provided below:

Natural healing power: does not manage the self-healing capacity of the natural body. They naturally improve the biological healing mechanism and naturalize and accelerate the recovery process. This makes the body keeps the hormone balance adequate and is active. Most herbal medicines demand adequate food, relaxation and exercise that boosts the herb's power by preparing the body so that it can react correctly and effectively. These rest, excellent nutrition and adjustments in lifestyle finally help the patient in healthy rhythms. It strengthens the antibody and gets the body fit against any diseases due to the inclination to be natural medicine. Because of what must be prevented during using such herbal medicine, the patient now prevents the causes or the causes of this condition again. Herbs also help to improve the immune system.

Nutrition and metabolism: A stronger immune system and a holistically balanced diet and lifestyle lead to increased metabolism and, in turn, to greater dietary absorption. You should not eat fatty foods and foods containing stimulants such as caffeine when using herbs. It does not include adequate nourishment, and stimulating meals interfere more with the medicine's substance and function. Stimulants decrease therapeutic efficacy. Side-effects: While utilizing herbal medicine there is nothing such side effects or allergies.

When a skilled herbal physician monitors the treatment of any patient with herbs, there would be no experience of contradiction. It is more natural and due to the mechanism of the body; the body responds to natural medication. The requirements of society are addressed through indigenous knowledge and customs, without damaging the environment for future needs and sustainability. Indigenous knowledge is used to sustain the community and its culture and to maintain genetic resources for the continued survival of the community (Lambert, 2003). The effective and sustainable use of natural resources by indigenous people from a range of groups lives in sustainable ways through indigenous knowledge and practice – strategies adapted to their needs and practicable in the context of smaller facilities. It is vital that they are integrated in the official education process to see whether they can transform the situation of students

Herbal medicine disadvantages

Indigenous knowledge is used to sustain the community and its culture and to maintain genetic resources for the continued survival of the community (Lambert, 2003). The effective and sustainable use of natural resources by indigenous people from a range of groups lives in sustainable ways through indigenous knowledge and practice – strategies adapted to their needs and practicable in the context of smaller facilities.

Modern health practitioners feel that they are against basic medical science and their Christian religious conscience for certain (Okwor et al., 2010).

Information on herbal medicine is not documented: The idea of herbal treatment is actually conveyed via an oral tradition or heritage from one parent to the next. Nearly majority indigenous knowledge practices are not written and librarians find it hard to learn more about digitalization.

For herbal medicine there is no expiry date: Herbalists would only use the drug on their own without metabolizing and testing the expiration date. The expiry dates of medicine should be calculated properly so that no stay medicinal products are used that might even cause ailments themselves.

There is no formal herbal medication intake measurement: Each medicine should have a typical dose and should be evaluated. Many people perished due to huge or tiny amounts of drugs. Medicine should not be administered without thorough measuring study, in particular plants.

There is a paucity of evidence. Although herbal therapy is continually used, its usefulness is not documented in controlling many health conditions. Therefore, the use of herbal medicine continues to rely on unchecked patient evidence which is often spread over the social network. Low education: most herbalists have a low degree of education. They were trained through informal techniques and training. Consequently, much of their expertise and activities are not documented. This poor educational level has led to poor records. Moreover, most of them have little or no formal knowledge of fundamental health matters.

The regulatory function of the government has failed. This is illustrated by the lack of effective supervision and regulation of the actions of herbal health practitioners (Okwor et al., 2014). Some present imaginary testimony of persons who have been cured effectively.

Information about such medicines should be digitized and preserved so that the idea can be transferred from one generation to the next. Although medical sciences library's certainly face collection preservation and management issues, there are unique challenges and opportunities for digitizing health information, especially herbal medicine information, in the form of digital library information, efficient organization and personnel and public relations.

Libraries work within the healthcare sector and are consequently affected by trends and characteristics that characterize the environment of health professionals. The company is concerned about access, at reasonable costs, to quality healthcare. More and more health workers acknowledge the value of information for effective, affordable healthcare. The development and use of evidence-based guidelines for the practice of Dalrymp (2003) calls for sophisticated

literary analysis, inventive methods for providing practitioners with information at the point of care and an understanding of the impact of information on the practical patterns and costs.

Nigerian medical libraries' digitalization of herbal information is a recent practice and can be considered as a change from physical materials to the electronic formats. This change is particularly obvious in the health sector, where librarians of health sciences are recognized that 'data collection aggregated from individual health records such as the clinical data ware - house or population health data can be viewed as a part of the larger digital library needed to support biomedical research, education and informed decisions on healthcare (Humphreys, 2000).

Challenges related to the digitization of traditional herbal medicine knowledge information material

Complex Inferiority

The problem of the inferiority mentality is that knowledge from the West exceeds indigenous understanding. These factors helped to make the local information resources little appreciated, which in the end hindered the development of the resource (Toong Tjiek, 2007). In search of universal validity, Western Knowledge on the other hand was detached from an epistemological framework.

The failure to continue some indigenous knowledge

Indigenous wisdom has been passed on from the old to the younger generations and vanishes as a result of cultural homogenization and people's deaths. The death of an old man or woman in Africa is like burning down the entire library, according to Dike (2007) in (Ekere and Ekere, 2009).

It's very secret

The pledge of secrecy of some families or cult members and the holiness of the material are serious obstacles. These members die or disclose it in their dying beds with their knowledge.

Most herbalists are not trained

As Nigeria's herbalists are highly illiterate, they cannot write or document any information about their treatment. That's why their knowledge and medicine are buried. Education is necessary for every individual in the city or in the village to satisfy environmental demand.

Possible solutions to the problem of digitization of indigenous herbal knowledge material. –

Librarians should collaborate with the host communities in order for indigenous knowledge to be appropriately used, documented, maintained and disseminated. They should act as a source of identification, location and preservation of indigenous knowledge sources in their localities (Okwor et al., 2014).

The Library shall establish inventories, registers and indigenous knowledge bibliographies in order to enable users to access the indigenous knowledge documented as indicated by (Ngulube, 2002).

They should also do the role of extorters, having a beneficial impact on the lives of communities, in order to establish a community friendship forum. By doing so, individuals will have the freedom to provide the librarians with confidential information about indigenous knowledge to be captured and documented and digitalized in the library.

Furthermore, Utibe-Abasi (2010) suggests that the problem of formal digitization, evaluation, documentation and dissemination methods of indigenous knowledge might be overcome by means of autochthonous knowledge-based training programs focused at enhancing Nigerian young people. However important, without properly handled, any type of documentation will lose its worth due to inaccessibility or a clear deterioration; (Nwachukwu, 2008).

To pack indigenous knowledge in audiovisual medium must be packaged to ensure that future generations enjoy the correct recording in an effective instrument for managing indigenous knowledge information, amongst others. His goal is to digitize indigenous material in the library for a long time.

The Libraries should endeavor to repackage the documented indigenous knowledge in several languages as much as feasible for easy digitalization and access.

They should use techniques such as microfilming and environment controls to preserve analog content for long term while also pursuing digital technology as a tool to enhance access to indigenous knowledge.

- ❖ Indigenous knowledge differs largely from Western knowledge, and is controlled so that indigenous groups may document and maintain their collecting, organization, storage and retrieval resources and expertise.
- ❖ Librarians should promote access to indigenous know-how through the creation of an atmosphere in which they can discuss and deliberate direct contact with indigenous communities on topics that may be of great importance in the lives of indigenous

communities, discuss and deliberate issues that could be of major importance for communities through effective communication.

- ❖ Libraries should hold seminars, workshops, lectures etc. involving local communities and collecting and recording information on many professions such as craft, agricultural industry, health, natural disasters, conflict management and ecology.
- ❖ The availability of ICTs, such as telephones, laptops, computers, internet services, digital cameras, camcorders, video recorders, etc. enabling libraries to digitalize and disseminate indigenous knowledge information is another technique which can address these difficulties (Utibe-Abasi, 2010).

To Nigeria Librarians should endeavor to encourage traditional institutions and older folks who are resource persons in local communities for the correct digitalization, documenting, conservation and accessibility of the indigenous knowledge of their booksellers. They can do this by recognizing the need to safeguard the rights of indigenous people over their traditional knowledge. Many indigenous people are concerned about the capture, without authorization or complication of customary laws, of their knowledge by researchers within and outside Africa and with little or no benefit. The employment of powerful instruments like copyright and patent law is speeding the usage and privatization of indigenous knowledge as a result of trade agreements under the World Trade Organization (Boven & Morohashi, 2002). Whether this intellectual property, rights for commercial inventions and the granting of exclusive rights for indigenous knowledge are equally controversial. In other parts of the world, we have explored the delicate question of maintaining the rights and privileges of the rightful owners of indigenous knowledge. Nigeria libraries can learn from this. This indicates the proactiveness of indigenous people as soon as they are protected from ownership of their information and are compensated to release these knowledges suitably (Lambert, 2003).

Last but not least, the institutionalization of indigenous knowledge is necessary. Universities in Africa are the ideal institutions for this essential duty, particularly in Nigeria. African universities have however a dismal reputation of research, innovation and community involvement (Barhardt & Kawagley, 2005). In African universities some work on indigenous knowledge, for instance on traditional medicine and on the use of medicinal plants was carried out, but it seems disparate. Similarly, Makinde & Shorunke (2013) discovered that multinational organizations employ local knowledge systems and resources, universities, research institutions and private enterprises.

Conclusion

In this study, information was presented on the difficulties, problems and prospects of digitization of indigenous knowledge, especially in Nigerian libraries. The study found that in the Nigerian medical libraries, the digitization of indigenous knowledge resources is restricted. This is because Africa is not able to collect and conserve indigenous knowledge resources due to the secrecy in which the practitioners provide such material to librarians. If the librarians implement the offered solutions in this paper in order to overcome the identified digital challenges of indigenous knowledge in libraries, it will be an old issue to digitize the Indigenous knowledge resources.

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