# THE ROLE OF LIBRARIANS IN HEALTH INFORMATION DIFFUSION IN THE DIGITAL AGE

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**Abstract**

*Access to reliable health information source builds knowledge that individuals need to take informed decisions that will promote their health and well-being. Inadequate/lack of access to reputable information creates a gap in knowledge of health problems, ultimately leading to poor health decisions and outcomes. In Nigeria, there are several sources such as health workers, mass media, textbooks and internet through which health information are disseminated to the public and patients, but libraries and librarians are often not considered as part of the explicit plan to advance the health of the populace. The paper therefore provides an overview of the role that libraries could play to promote diffusion of information for quality health care in Nigeria drawing from examples of such practices in developed countries. Librarians as repositories of knowledge could be involved in helping the public to get high quality consumer health information, in providing patients' education and in imparting information literacy skills which avails individuals the understanding of their health status, and take appropriate actions to prevent and control diseases. Information prescription entails the librarians providing personalized or customized information to patients on the request of the consulting physicians thereby improving patients' ability to manage and control his/her medical condition. The library could further engage in outreach to take health information to grassroots and are also relevant in emergency response and preparedness.*

Keywords: Libraries, health, information, consumer, and records

**Introduction**

Health has always remain a major concern to man. The word "health" takes its root from the concept of wholeness as opposed to the concept of illness. Healthy living implies a state of complete physical, mental, and social well-being, and not just the absence of disease and infirmity. The right of every individual to the best attainable standard of health is embedded in the United Nations' human rights framework (United Nations, 2017). The majority of nations in Africa cannot meet up with the basic needs of their citizens for quality healthcare systems due to myriads of challenges. The factors that have accounted for dilapidated health care services in Nigeria include corruption, decaying infrastructures and substandard health facilities, inefficient leadership, poor remuneration, inadequate funding, political instability, substandard medications, drugs adulteration and drug stock outs, difficulty in accessing health care, industrial actions, nonfunctional system for disease response, prevention, surveillance and treatment, and lack of trust in the nation's health sector (Amedari *et al*. 2021).

Corrupt practices identified as the leading plaque bedeviling the Nigerian health sector include fund embezzlement, bribes, absenteeism, and drug malpractices (Onwujekwe *et al*., 2020). Okafor (2016) stated that between 2011 and 2015, Nigeria committed less than 6% of her budget to health, as against 11% of a country's Gross Domestic Product recommended by World Health Organization (WHO) and 15% allocation of countries' annual budget recommended by the African Union.

Price Waterhouse Coopers (2016) report shows that Nigerians spend $1 billion annually on medical tourism, which represented about 20% of $5.85 billion collective expenditure of federal, states and local governments on financing of public health sector in 2015. Abubakar et *al*. (2015) reported that over 5,000 Nigerians proceed on medical tourism abroad monthly, resulting in a loss of about $1.2 billion annually to the Nigerian economy. The physicians and nurses trained in Nigeria often emigrate to other regions considered to be more lucrative. Okafor (2017) reported that Nigeria doctors in diaspora is about 37,000, with about 30,000 of them in USA and 5,000 in the United Kingdom.

Though, Nigeria is just 2.9% of the global population, 9% of reported neonatal death occurs in the country (United Nations Inter-agency Group for Child Mortality Estimation, 2017). WHO (2019) report shows that over 600 000 maternal deaths and about 900 000 maternal near-miss cases happened from 2005 to 2015 in Nigeria. The 46 most developed coutries of the world altogether had a ratio of 12 maternal deaths per 100 000 live births, but Nigeria alone has a ratio of 800 maternal deaths per 100 000 live births (WHO, 2019). Vangaurd (2021) reported that at the 2021 Africa Health Agenda International

Conference, the report of the Africa Sustainability Index of the FutureProofing Healthcare initiative revealed that Nigeria occupied the bottom position in maternal mortality, infant vaccination, and neonatal mortality and seventh on births attended to by skilled health staff. Fullman *et al*. (2018) ranking of performance of health systems in 195 countries using healthcare access and quality as the criteria placed Nigeria in 142 position. The above grim statistics clearly shows that the attainment of quality health care is beyond what the medical practice alone could handle and that every other relevant stakeholders must join hands with the health care providers in Nigeria to improve on health care delivery.

**Statement of the Problem**

Though, libraries are in a vantage position to provide the public with health information, they are often not involved by policy makers and public health experts as part of the explicit plan to advance the health of the populace. The role of librarians as disseminators of health information is yet to be given adequate attention and promotion that it deserves in Nigeria (Zaid, 2018). Nigerians have high level of trust in the library and thousands of people daily make use of the libraries, making the library an ideal place for health information provision. The paper thus presents different activities that librarians could carry out to be partner in advancing the health of Nigerians.

**Methodology**

The literature search for this paper was from print and electronic sources. The search engines and databases used included Google Scholar, Directory of Open Access Journals (DOAJ), African Journals Online, Web of Science, and EBSCO HOST. Boolean operators of AND, NOT and OR for search strings such as Health Information and Library, Librarians and Health Information were used. WHO and IFLA websites on health information as well as newspaper reports on the subject were considered. The citations in print and digital materials retrieved were also searched and relevant articles retrieved from appropriate databases. The publications of reputable medical librarians on the subjects were retrieved using Scholar Google. The articles gathered were all screened physically to identify the ones relevant to the study.

**The importance of health information**

Information is critical for man's existence as it increases the probability of certainty in the process of decision making. Iinformation leads to knowledge and the two are vital tools that enhance social and economic development. Access to quality information lifts people from illiteracy to literacy, ignorance to enlightenment and poverty to posterity.

Information influences behavior, perception, making choices and risk ultimately impacting on individuals' physical health (Zaid, 2018). Gann (1986) asserted that information is the first step to every healthy decision and that good health and being in control of one's health requires getting continuous access to information on how the body functions in health and diseases. Knowles (1977) stated that the responsibility by individuals to maintain their health implies a "right to expect help with information''. Brain and Spine Foundation (2007) submitted that access to quality health information assist those with chronic diseases to be better prepared to improve their health and quality of life, boost their capability to take control of their health and fosters knowledge about different treatment options. Ibegwam (2013) was of the opinion that health information access is as important as access to drugs and equipment for delivery of quality health care. In buttressing the significant role of information, Target 16.10 of the SDGs states that ''a well-informed society makes significant contribution to the nation's development as the availability of information resources would promote peaceful and inclusive societies for sustainable development, providing access to justice for all and build effective, accountable and inclusive institutions at all levels''.

Information is obviously one of the most effective resources required to live healthy lifestyles and is also related to improved clinical and social outcomes. Unmet needs on information has been linked to poor clinical outcomes, frequent hospital readmissions, failure to comply with medication instruction and absence of adaptive mechanisms to cope with a disease.

**Health Information Sources**

It will not be out rightly correct to say that there is paucity of health information. In reality, health information is overwhelmingly available. Voluntary organizations such as Sickle Cell Club, HIV/AIDS Club exist for important diseases, purposely to provide information and help those having specific diseases. Specific dates in the year are set aside to remind people about certain diseases such as the World AIDS Day, 2nd December; World Malaria day, 25th April; and Cancer Sensitization day, 4th February. Government agencies such as the Nigerian Centre for Disease Control and Nigeria Medical Research Institutes roll out publications and gray literature on health matters from time to time to enlighten the populace.

The Non-governmental organizations (NGOs) play active roles in creating health information awareness in Nigeria. The services rendered

by NGOs include information dissemination, outreach services, training and education, advocacy, counseling, testing, care and support and assistance to orphans. There are various health education topics in the curricula right from Primary Schools up to University levels in Nigeria. International agencies such as the World Health Organization and United Nations Population Fund issue out official documents containing health information from time to time for the public. Health workers including doctors, nurses, pharmacists and community health Officers are important sources of health information globally because they have the expertise to provide trustworthy and reliable information to patients and the general public. Studies have indicated that people actually make use of diverse health information sources, but the majority prefer getting the information from health care workers. In Africa, though interactions with physicians was found to be less frequent, but physicians were the most preferred health information source by the populace (Bastien *et al*., 2010; Bankole *et al*., 2017). Jimam and Teyiremi (2015) found that 90.5% of Jos residents said they got health information from health workers. The study of Zaid (2018) found that 87.1% of sampled residents of Lagos State, Nigeria obtained information about high blood pressure from their family physicians. Parents represent trusted sources from which young people turn to for health information especially on reproductive health matters (Nwalo and Anasi, 2012).

Electronic media (television and radio) are foremost sources through which people obtain their knowledge on health, because it has the possibility of getting to large numbers of people. Chapin (2000) noted that television is highly influential to the extent that it serves as a teacher to young adults. A popular program 'Doctor explains this' was used by Ogun State Broadcasting Corporation in Ogun State, Nigeria to enlighten the public on a wide range of health matters. The Nigerian Television Authority (NTA) has several programmes where doctors are invited and the public are given the chance to phone in and clarify their concerns on health. The Channels Television in Nigeria took it upon itself to invite public health physicians almost on a daily basis during the peak of COVID 19 infection in Nigeria in 2020.

Newspapers such as the Punch, The Guardian, and Vanguard have columns devoted to heath where clinicians and other public health experts address health matters. There are health magazines such as 'Home Doctor' published by different health outfits to disseminate health information. The Federal and State Ministries of Health produce bill boards, posters and leaflets to disseminate health information in both urban and rural areas in Nigeria.

The Internet which is the most widespread communication tool of the moment is increasingly being used globally to seek and comprehend health information for disease prevention and control. There are websites on the internet devoted to provision of education and advice to patients on specific diseases. The strength of the internet lies in the fact that individuals can obtain selected information based on their needs. It avails the opportunity to get the exact information that is being sought, and to also get answers to concerns that one may not be willing to ask providers. The internet is cost efficient and its ubiquitous nature allows it to provide instant access to information from varied sources that otherwise might have been inaccessible(Massey, 2016).

Religion as a social institution have pervasive influence on Africans both at the levels of individual and group. Most religious outfits present lectures, seminars and workshops to their congregations on health matters. The Redeemed Christian Church of God Churches at branches, zonal, provincial, and regional levels invite health experts usually members to give lectures on health topics and provide answers to questions bothering the minds of their congregations. The Deeper Christian Life Ministry mounts an annual programme "You and your health." during which health practitioners discuss health needs of women such as pregnancy, breastfeeding, infertility, and menopause.

The other sources of health information used by people include textbooks, friends, and peer organizations having people with similar condition. Onwe and Okocha (2019) found that students of Kaduna State University, Nigeria mostly used friends and parents to get health information. Adeyoyin and Oyewusi (2015) found textbooks and newspapers/magazines to be the major sources of health information to young adults in Abeokuta, Ogun State.

The library being knowledge repositories has in its collections print resources such as books, journals, newspapers and electronic and internet resources, and therefore should be of help to people in seeking quality health information. However studies carried out locally and internationally revealed that there is low demand for health information from libraries (Odusanya and Bankole, 2006; Barton, 2008; Nwalo and Anasi, 2012). Hallyburton *et al*. (2008) found out about three quarters of librarians in surveyed of American libraries were not taking any active role in health information delivery but 90% of them believed it was their duty to be involved. Duhon and Jameson (2013) survey found that most librarians believed some need for librarians involvement in health information provision, but more than 50% of them did not actually participate, creating a gap between expected and actual role being carried out by the librarians.

**Role of Libraries in the Provision of Health Information**

Library is the only public institution that provide people with free information access. Libraries act as bridges that connect knowledge generators and seekers. The functions of the modern day libraries and librarians have drastically changed from the traditional practice of being passive keepers and preservers of books to being facilitators to global information and lifelong learning. The 21st century libraries develop the learning capability of their clients by providing information on issues such as health, employment, continuing education and local history. Potter (2012) averred that marketing of library should not be on the tools but on what people aspire to and that instead of posting our library have 40 databases, it should be our library provides you with information you cannot find on Google.

Horrigan (2015) reported that most patrons in the US looking for health information visit the libraries either to use internet or ask librarian for assistance. Ajuwon *et al*. (2017) averred that most individuals looking for health information often first visited public libraries to access required information. Nkiko and Iroaganachi (2015) opined that for libraries to retain continuous relevance, they should in addition to their traditional roles be involved in providing solutions to challenges faced by people in their comminutes. According to Chisita (2020), COVID-19 pandemic has availed libraries the opportunity to showcase themselves that they cannot be pushed aside in the fight against an "infodemic or information disorder.

The Library Association of Ireland (2017) emphasized that librarians should on a continuous basis remind health care professionals the importance of timely, correct and relavant information for making good health decision. This is because the online environment has both factual and incrediblel information, which could be harmful to information consumers. The Medical Library Association (USA), submits that health information professionals provide access to and delivers critical information that improves care of patient and supports education and research(Medical Library Association (USA), 2020). Recognizing the usefulness of healthcare records, Mary Land Healthcare Commission (MHCC) (2013) stated that electronic records consolidates patients healthcare as it improves efficiency, quality and safety of healthcare services. Citing examples from various parts of the world, the various roles that librarians could play to contribute meaningfully to information dissemination quality health care are discussed below:

**Provision of consumer health information through collection development**

Consumer health information is any information that people need to make informed decisions and choices about their health or the health of

their loved ones. Libraries should have in stocks credible, up to date, easily understandable information resources that could direct users to other relevant resources. The collections should be broad in scope with specific types of information on common health issues such as malaria, high blood pressure and COVID-19. In addition to print and electronic resources, collections should also include pamphlets, newsletters and information on local resources gathered from local and international sources such as the NGOs working on health. Orban (2005) posited that if libraries refuse to select and provide their clients with credible and reliable information, they will get it from other sources which may turn out to be fake, and lead them to take inappropriate decisions regarding their well-being. Obidike and Nkechi (2011) submitted that libraries should collect and compile health information, store them in suitable formats easily accessible to the information users as well as policy and decision-makers.

The librarians could facilitate access of their clients to online consumer health information (OCHI) which refers to information on the internet for public use. The information could be in different formats: written, audio, video access; on websites, online forums, blogs, journals, health magazines, professional bodies sites and government sites(El Sherif *et al*., 2018). It has been established that generally a positive association exist between access to OCHI and consumers engagement in their own health care, self empowerment and that of their families, and better health outcomes (Edwards and Edwards, 2009). People use OCHI to decide on whether or not to see a doctor, to improve their abilities to be involved in their personal health care, to comply with or modify management plan, or to support relatives or friends with health concern (Pluye et al., 2021). The review of Sherif *et al*. (2015) showed that OCHI leads to reduced anxiety, improved health, and satisfaction with health care services, though some negative outcomes such as increased anxiety (cyberchondria), and strained relationship between patient and clinician after sharing retrieved OCHI with clinician were also identified in some cases. The librarians could be involved in facilitating discussion between consmuers and clinicians leading to reduced strained relationships.

Libraries in developed countries harness the internet to provide health information to the people, but such may not easily be the case in Nigeria because many still do not have access to the Internet and when there is access, it is costly and irregular. To surmount this, libraries can specially create an e-repository health information resources or virtual library of health promotion practices that would serve the public as well as health practitioners and policy-makers.

There is no regulation in place to check the quality of information posted on the Internet, thus raising credibility issue with internet health information. Infodemic refers to the over- abundance of information on an epidemic and the rapid spread of fabricated and fraudulent news, images and videos. The response against COVID 19 pandemic is threatened by a tsunami of information-infodemic, fake news and misinformation. The public need assistance in knowing the reliable and safe health information from the pool of information on the internet. The above accentuates the relevance of the library in making health information available to people. The involvement of librarians in health information–seeking process by consumers help to guarantee the credibility of information retrieved and used, leading to fewer internal worries. The librarians as expert searchers could sieve out correct health internet information and repackage such to meet the needs of various target groups in their communities. Obadare (2014) emphasized that librarians should know that part of their duty is to educate their clients on the 'good' and 'bad' online information, and should be of assistance to their client in separating the 'good' and 'bad' information. Libraries could link their websites to that of agencies of governments such as the Nigerian Center for Disease Control, and National Agency for Control of AIDS that produce reliable information on various aspects of health.

It should however be pointed out in certain situations, ascertaining information credibility and identifying reliable sources for some health concerns could be a challenge to librarians (Rubenstein 2016). Smith *et al*. (2016) noted that many librarians are not favourably disposed to answering questions on health due to deficit knowledge. It will thus be necessary for relevant authorities to ensure that librarians are trained on a continuous basis on provision of consumer health information for them to be able to serve their clients effectively on health information needs.

**Imparting health information literacy skills**

The internet contains a torrent of credible, incredulous and misleading information. Silberg et al. (1997) pointed out that a significant part of online health information was unreliable, having questionable quality, or potentially unsafe. Namuleme et al. (2017) observed that people believed that looking for information from internet could result in contradictory, misleading, outdated, inaccurate, or too much technical information. Berland *et al*. (2001) found that online information from prominent search engines such as Google and AltaVista on obesity, asthma, depression and breast cancer was often correct, but were incomplete in many cases, which could have negative influence on decisions taking by users. Most internet users in Nigeria lack the skills to identify credible online information. Bankole and Onasote (2017) found that inability to get accurate and reliable information was the major barrier to seeking

health information on contraception by female students in a Nigerian university.

Health literacy has been defined in different ways by scholars. However, this study considers the definitions of Nielsen (2004) which defined health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" and that of WHO (1998) that defined health literacy as the extent to which individuals have the capacity to obtain, process and understand basic health information, choose health services, and make appropriate health decisions. Health literacy is a significant empowerment strategy, enabling individuals to seek necessary information, control their own health matters and take responsibility for their actions (Kickbusch et al. 2006). Moreover, the adequate health literacy facilitates better personal care, creates an enabling environment to implement health policies and achieving improved health outcomes, particularly in reducing health inequity and stress(Nair et al., 2016).

Low health literacy results in miserable health status and disease outcomes such as frequent hospitalizations, high cost of health care spending, confused knowledge of medical information, and poor knowledge of prevention strategies (Ickes and Cottrell, 2010). Other drawbacks of poor health literacy include failure to locate health care services and providers, refusal to release information on health history, rejection of types of treatment offered by health care providers, failure to cooperate with healthcare providers during treatment, failure to comply with instructions for management of chronic diseases and irrational medications (Adekoya-Cole et al., 2015). The authors further stated that most Nigerians have low health literacy and that the first step towards solving the problem was for the government and other n relevant stakeholders to recognize the problem and then come up with strategies to assist Nigerians in this regard.

Kars et al. (2008) remarked that librarians regardless of where they work could be involved in imparting health literacy skills to help clients access and comprehend health information. Orban et al. (2005) posited that librarians should promoting health information literacy to library clients to help them have the ability to recognize when there is a need for health information, the likely sources of information and the skills to to retrieve relevant information; assess the quality, and apply it meet specific needs. The librarians could come in here to impart health information literacy skills which will allow their customers to navigate through the internet based health resources and get credible information.

The librarians should make sure they impart knowledge of health literacy for combating diseases to health information consumers Chipungahelo et al. (2015) averred that librarians are duty bount to impart knowledge of health literacy of how to combat diseases to health information consumers.

Considering the very high number of mobile phones with internet connections in Nigeria, it is possible for librarians to repackage and use social media to disseminate health information. The social media was identified as a viable tool for HIV/AIDS information dissemination in North Carolina, USA (Taggart, Grewe, Conserve, Gilwa and Isler, 2015). Namuleme *et al*. (2017) proposed that health information librarians in Africa should use social media to distribute repackaged credible HIV/AIDS information in accessible languages and formats to the public. Libraries could install electronic learning resources on HIV/AIDS to create awareness within their constituency. E learning modules could easily reach geographically scattered people and people could log in to such facilities anonymously, and learn at their own pace (Ajayi and Omotayo, 2010).

**Provision of Health information for the illiterates**

The Minister of Education in Nigeria, Malam Adamu Adamu put the number of those that are illiterates in Nigeria in the range of 65 to 75 million people. Thus, disseminating health information through print and ICT resources is pro literacy bias, and excludes the large number of people that are illiterates. Du Plessis (2008) submitted that the oral culture of Africans weakens the ability of public libraries getting relevant information to their clients and proposed that African libraries should promote sharing of oral knowledge to enhance diffusion of information among their clients. Bankole and Babalola (2019) submitted that even the educated Nigerians have poor reading habit, and a common saying is that if wish to hide anything from an African man, simply put it in books. The librarians can come in here to design health information to take care of audience with large numbers of illiterates. The oral methods of communication that libraries could deploy to reach rural dwellers in Nigeria include riddles and songs, traditional drama, folk media with proverbs, masks and puppet performances. Adekanmbi and Dada (2017) found that rural women in a part of Nigeria preferred to receive health information on HIV/AIDS through folk media as against modern media.

**Information Prescription initiatives**

Information prescription refers to the provision of specific quality health information to educate individual/patient to increase his/her understanding and improve his/her ability to manage and control his/her ill health’’(Gavgani *et al*., 2013). The idea is to fill the gap of problems

such as training and tools associated with informing patients in primary care. The inclusion of a health information professional in a health care team enhances access to quality information resources and lighten the task of the clinician providing information for their clients(West et al., 2005). The uniqueness of information prescription is that it is initiated by the physician and personalized or customized and differs from consumer health information services which is for people looking for health information on their own, and not on the directive of a doctor.

One of the ways by which librarians are involved in information prescription is by availing clinicians of quality health resources for educating patients. This effort entails the promotion of consumer health information portals such as the NLM Medline Plus and "Information prescription toolkit" that utilizes it (Whitney *et al*., 2017). The toolkit consists of a box with many information prescription pads and some promotional materials with MedlinePlus.

Another method is for the librarians to select and package information materials to meet the need of individual patients. An example of this is the "information prescription" referral form created at the Eskind Biomedical Library at Vanderbilt University Medical Center which clinicinas use to refer their patients to the services(Williams *et al*., 2005). The clinician fills the form indicating the topic and any other special considerations, and the form is brought to the patient section in the library. The librarians use their expertise to gather a packet of credible information on the topic, and also engage the patient on how to evaluate information quality. The copy of the authoritative information is also sent to the referring clnicians. The Ministry of Health in New Zealand championed a National Mental Health Information Strategy in 2005 for delivery of quality mental health services to consumers. The priority focus of this strategy was to evolve a process that deploys information technology to collect relevant information purposely to enhance quality of services (Ministry of Health New Zealand, 2005).

**Embedded librarianship**

"Embedded librarianship refers to the integration of librarians or practice at strategic points in health care professional training, scholarly activities, and patient care. It is essentially taking the library and librarians to clients in their domain which could be at home, office or laboratory instead of waiting for clients to come to the library. Shumaker and Tyler (2013) described embedded librarian as a librarian integrated into a group comprising of non librarians, providing knowledge and information services as a member of a group. The embedded librarian finds out the needs of a group, make connections with the group, search

for information about what the group does, and provides the group with customized information based on need. Federer (2013) opined that an embedded librarian is a research informationist that work in a group with researchers or a project from the start to the end of the study, and in charge of data identification, searching and management. The uniqueness of an embedded librarian is that he works as a member of a team as opposed to being a service provider standing apart, thus the librarian has the status of a collaborator/partner and not a supporting role, renders special services in addition to the services expected from non embedded colleagues, carry out activities that build permanent relationships such as attendance of conferences in area of specialilty of clients and having wide knowledge of clients' work (Shumaker and Tyler, 2007). Madu and Dakhwa (2019) averred that compliance to embedded services was low in Nigeria but that the librarians have taken cognizance of the need to key into embedding the librarians into services outside the library building,

Liaison librarians which is a form of embedded librarianship are those that are officially assigned to be primary contact between the library and one or more units(department/programmes). The function is to foster information transfer between the library and user groups, build collections of high quality to meet the needs of user groups and also engage on other activities that could promote the image of the library(Cooper and Crum, 2013). An illustration of liaison services was the Countway Library of Yale University and a medical school department contractual agreement that integrated a librarian into institutional environment to take on new roles. The librarian served as liaison to the curriculum planning of the medical school, and was also involved in software and computing facility support (Schatz and Whitehead, 1995).

The second type, the Informationist is a health librarian in clinical teams that has been trained in both information science and science or medicine (Davidoff and Florance, 2000). The librarian provides answers to clinical questions by going through relevant articles, identifies and extracts useful information, prepares brief reports of his findings, and forward the information product generated to the user, and the role is distinct from the traditional medical librarian.

There are few reports on explicit programmes of embedded librarians in the health sector in the Nigerian context, though there are documentations of a number of activities of libraries and librarians being done unconsciously, to integrate the library into what researchers/clinicians are doing in their work place. Inuwa and Abrizah's (2018) understanding of the practice of embedded librarianship by

academic librarians in Nigerian universities include doing research and publication of papers, serving as national journal editors and reviewers of papers for publication, management of life cycle of data, teaching research methodology, doing biometrical analysis, and dissemination of research output. The authors further stated that the embedded roles avail librarians the opportunity to project their image in their workplace and in the society at large in Nigeria.

**Outreach**

Outreach includes various activites carried out by librarians to get information across to grass root level. The goal of library outreach is to get to as many people as possible in an effort to deliver to them authoritative resources, for which they may not have been aware of or have means to access. Outreach makes it possible for people in remote areas to be reached with health information materials in form of book mobile services, books, journals, pamphlets, booklets, newspapers, audiovisuals, video and slide shows. It also makes it possible to reach marginalized groups such as the rural dwellers, immigrants and refugees, the sick and elderly and the physically challenged that require specialized approaches to meet their health information needs.

Nwazor-Orizu (2009) described the outreach embarked upon by a librarian in Eastern and Southern Nigeria that took health information about HIV/AIDS to churches, schools, and community gatheirngs. The outreach could be in form of librarians distributing finding tools to create awareness of health information resources available in their library collections. Weyant *et al*. (2019) described the outreach services by librarians of Quillen College of Medicine Library, East Tennessee State University to rural and underserved populations at Remote Area Medical (RAM) clinics. The outreach first entail interactions of librarians' with patients on their health information needs as they wait for their turn to see the clinicians. The librarians solicited for questions from the patients, perform searches at the point, print and hand it over to the patient. The procedure was very long, which made the librarians to introduce adaptive measures to better handle consumer health information materials with patients. The librarians partnered with the Faculty at their university College of Medicine that are specialists in rural health to obtain a list of health topics relevant to the needs of the rural people. The librarians thereafter obtained different kinds of handouts on those important health issues that included nutrition, obesity, heart disease, blood pressure and cholesterol, sexually transmitted infections, mental health, opioid dependence and dental procedures. This strategy ensured that patients quickly get materials on pressing health concern from authoritative consumer health webs. Dubon and Jameson (2013) reported that that the major types of outreach carried out by librarians in a US

survey was on 'training on the use of quality consumer/patient health information' (62%), followed by 'publicizing resources via blog or website' (59%) and displays or exhibits and on-campus health fairs (40%)

**Conclusion and Recommendations**

This study has shown that health information is available from several sources including interpersonal communications, mass communication channels, official sources(WHO, Federal Ministry of Health Agencies such as NCDC, NACA), scientific sources(journals), religious organizations and the internet. The massive online health information necessitates the deployment of strategies to ensure that people are provided with those information that are accurate, complete and timely. It also demands that people are empowered to be able to sift credible information from the ever increasing online health information. The study has highlighted the strategies that libraries and librarians could use to ensure that Nigerians have access to the right and timely health information. The librarians could help the public to identify high quality consumer health information and could also relieve the clinician the burden of providing information to clients by engaging in information prescription. The library could take health information to the underserved and less privileged through outreach services, while they could also provide information and temporary relief to victims in time of disaster. It is important for libraries to traverse her traditional roles, and rise up to take up new challenges to maintain relevance in this era of online information explosion.

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