Information Behaviour of Medical Faculty in the Tertiary Health Institutions in Kwara State Nigeria

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Thesis submitted in fulfilment of the requirements for the award of degree
of Doctor of Philosophy (Information Studies) in the School of Social Sciences,
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Submitted: March 2016

DECLARATION

I, **Tunde Kamal Omopupa** declare that:

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(ii.) This thesis has not been submitted for any degree or examination at any other university.

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ABSTRACT

The study investigated the information behaviour of medical faculty in the tertiary health institutions in Kwara State, Nigeria. The study sought to determine the information needs, information sources used, information utilisation, information sharing and information for collaboration of medical faculty in the health tertiary institutions in Kwara State, Nigeria. Wilson's (1994) and Leckie *et al.*'s (1996) models of information behaviour underpinned the study. The study also used the post-positivist research paradigm as the theoretical lens to illuminate the research problem. A combination of quantitative and qualitative methods were used as the study design. The population of the study comprised of management staff, deans of faculties, heads of departments, faculty and medical librarians. A purposive strategy was used to select the samples from the respective populations. Data was collected through a survey questionnaire and interviews. To ensure the reliability and validity of the results, an Explorative Factor Analysis (EFA) was performed on the findings of a pre-tested questionnaire. The results of the pre-test indicated that the observed variables in the research instruments were reliable and valid.

The quantitative and qualitative data obtained from the main study were analysed using SPSS (Statistical Packages for Social Sciences) software and thematic analysis respectively to generate descriptive and inferential statistics. Findings revealed that 99 (61.1%) of males in the age range of 31 - 40 had BSc degrees. The findings showed that a majority, 85 (52.5%) of respondents were affiliated to the College of Health Sciences, University of Ilorin, and 47 (29.0%) to Nursing Services. In addition, 147 (90.7%) of respondents were full-time faculty in the institutions surveyed. There were 31 (19.1%) consultants among the respondents of which 40 (24.7%) had served the institutions for 6-10 years and 63 (38.9%) had spent between 1-5 years in their present institutions.

The findings generally indicated that 106 (65.4%) of respondents sought information from senior colleagues. The findings further revealed that 55 (34%) of respondents consulted information sources fortnightly and another 106 (65.4%) indicated that they received information through faculty board and departmental meetings. Furthermore, 62 (38.3%) of respondents spent 41% - 60% of their time seeking information while 103 (63.6%) indicated that books were their most sought after information source from the library. In addition, 52 (32.1%) of respondents preferred reader services to any other services provided by medical libraries. The findings showed that the most frequently used tools by faculty to access

information were library catalogues 60 (37.0%). The findings also revealed that 86 (53.1%) of respondents used their institutional library to access information while 144 (88.9%) used the internet for accessing information. The findings showed that information for collaboration, information utilisation and information sharing were reasons why faculty sought information to fulfil teaching, research and patient care information needs. Findings further showed that 61 (37.7%) respondents visited the library to access information while 90 (55.8%) asked for second opinions from colleagues. The respondents identified several challenges they faced in seeking information which included inadequate resources, lack of qualified staff, limited funding, high cost of journal subscriptions, limited library space and limited opening hours of the library.

The study recommended education and training, to create awareness for both medical librarians and medical faculty about the diversity of, and use of information resources (in both print and electronic formats) available, and continuing professional development through workshops, seminars and an academic community of practice as part of capacity building of medical faculty in the quest to fulfil their information needs. The study further recommended the need to provide an adequate budgetary allocation that would enable the provision of information resources to support the needs of medical faculty in the tertiary health institutions in Kwara State, Nigeria. Emphasis should also be given to the information infrastructure for development, improving Internet access, information literacy programmes, and a mentoring plan for junior medical faculty to become independent information seekers and users. In addition, library opening hours in the institutions should be made flexible and extended so that information can be accessed beyond working hours; coordinated information sharing and collaboration programmes such as the community of practice should be encouraged among medical faculty. Tertiary health institutions should also strive to strengthen the collection of up to date and relevant medical books to satisfy the demand for this preferred information source by the faculty. Skills training for catalogue use, databases access, computer literacy skills, Internet access and Medline materials access skills should be provided.

DEDICATION

This work is dedicated to Almighty Allah for His guidance on me and my family. To my parents, siblings, wife and children (Zulheikha, Salmat, Awwal, Thanni and Maru'f) for their prayers, support, perseverance and for coping with my absence throughout the journey of this study.

LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
BMAS	Benchmark Minimum Academic Standards
BSc	Bachelor of Science
CHS	College Health Sciences, University of Ilorin
CIS	Collaborative Information Seeking
CMC	Computer-Mediated Communication
CONM	College of Nursing and Midwifery
CPD	Continuing Professional Development
DNP	Doctor of Nursing Practice
EFA	Exploratory Factor Analysis
EIR	Electronic Information Retrieval
EMR	Electronic Medical Resources
EMRS	Electronic Medical Record System
FMC	Federal Medical Centre
GH	Global Health
HDI	Head of Department in the Institution
HI	Head of Institution
HINARI	Health InterNetwork Access to Research Initiative
HIT	Health Information Technology
HIV	Human Immunodeficiency Virus infection
HRM	Human Resources Management

IT	Information Technology
ICT	Information and Communication Technology
ISB	Information Seeking Behaviour
KMO	Kaiser-Meyer-Olkin
LAUTECHTH	Ladoke Akintola University Teaching Hospital
LDC	Less Developed Country
LGA	Local Government Area
LIS	Library and Information Science
MBBS	Bachelor of Medicine, Bachelor of Surgery
MDCN	Medical and Dental Council of Nigeria
MEPIN	Medical Education Partnership Initiative in Nigeria
ML	Medical Librarian
NIH	National Institute of Health
NMRC	Nursing and Midwifery Registration Council of Nigeria
NPMC	National Postgraduate Medical College
NPC	National Population Commission
NUC	National Universities Commission
OPAC	Online Public Access Catalogue
PBRN	Primary Care Practice-Based Research Network
P-DA	Patient Decision Aid
Ph.D	Doctor of Philosophy
PHC	Primary Health Care
RQ	Research Question
SPSS	Statistical Package for Social Sciences

SSH	Sobi Specialist Hospital
UAE	United Arab Emirates
UCH	University College Hospital
UK	United Kingdom
UKZN	University of KwaZulu-Natal
USA	United States of America
UTHSC	University of Tennessee Health Science Centre
WAPMC	West African Postgraduate Medical College

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study investigated the information behaviour of the medical faculty in three tertiary health institutions in Kwara State, Nigeria. This chapter covers the introduction to the study, the statement of the problem, research objectives and research questions. The chapter also provides the delimitation of the study, significance of the study, statement of the problem, study assumptions, principal theories underpinning the study, preliminary literature review, methodology, structure of the thesis, key definitions and summary.

Generally, healthcare professionals are known variously as medical practitioners, physicians, nurses, doctors and medical faculty depending on their roles and the organisations of affiliation. Similarly, Pololi, Krupat, Civian, Ash, and Brennan (2012) defines medical faculty are academic staff involved in teaching, research and patients care. Pololi, Krupat, Civian, Ash, and Brennan (2012) in the context of the United States of America (US) further described the roles of medical faculty to include educating, developing and promoting research in the biomedical, behavioural sciences and providing clinical care for patients. The medical faculty job roles demand extensive information to support their academic tasks. In this regard Bhutta, Chen, Cohen, Crisp, Evans, Fineberg and Zurayk (2010) assert that medical faculty train healthcare professionals to apply the best scientific evidence in clinical practice through teaching, research and patient care. Medical faculty, therefore, need extensive and varied sources of information to perform their job roles and also cope with the complexities of different medical specialisations. The information needed by medical faculty is also dictated by type and location of medical practices, speciality and the size of the medical institutions where they are affiliated. Hansen and Wood (2011) pointed out that designing and delivering successfully medical practice requires access to different source is desirable for a particular role of their jobs. The information sources available for medical practices in Nigeria therefore, include audiovisual materials that are disseminated in designated areas (Mabawonku and Atinmo, 1980). Though responsibilities of medical academics are diverse, this study is limited to investigating their information needs that relate to teaching, research and patient care.

1.1.1 Medical Professional Education Around the World

As already pointed out above one of the key roles of the medical profession is the training of healthcare professionals. Al-Erakyi, Donkers, Gohar and Van Merrieboer (2014) pointed out that medical professional education may differ from one region to another around the world because of various contexts. In this regard for example, van Zanten, McKinley, Durante Montiel and Pijano (2012) indicated that medical education in Mexico comprises of 6-year and 7-year physicians education programme. The programme also includes one additional year for internship and another year for mandatory social service respectively leading to the award of physician and surgeon degrees. The training also includes class work, laboratory and bedside internship and community service.

Gardner, Carryer, Gardner and Dunn (2006) researched nursing practice in Australia and New Zealand. The study identified effective training, professional effectiveness and clinical leadership practice as critical performance indicators. Brown (2008) assessed United Kingdom (UK) medical schools' core curriculum in 2006 and found that medical education centered around factual and scientific knowledge while the clinical setting and internship focused on improved curriculum, teaching, research methods and innovative management. Davis, O'Brien, Freemantle, Wolf, Mazmanian and Taylor-Vaisey, (1999) described medical and healthcare education pedagogy at the undergraduate level in the US to include lectures, audio/visual presentations and utilisation of printed information resources.

The post-independence era in developing countries saw the establishment of government teaching hospitals and nursing schools. The period has got a boost in the human and material development for developing countries in the area of medical education from donor nations that contributed to tertiary health services by supporting the country's healthcare budget (Hall and Taylor, 2003; Federal Ministry of Health, 2007). As a result Mullan, Frehywot, Omaswa, Buch, Chen, Greysen and Boelen (2011) opined that medical education in developing countries has seen the strengthening of healthcare provision and innovations in premedical preparation; team-based education and creative use of scarce research support. Additionally, the growth of private medical schools and faculty seeking greener pasture beyond the shore of the country has led to scarcities of faculty in basic and clinical sciences coupled with poor physical infrastructure (Manyama, Mshana and Kabangira and Konje 2013). Mullan *et al.* (2011) also point to the Shortages within medical school faculties as endemic, problematic and worsen by emigration of health-care workers.

In the context of Africa different medical education practices exist. For example, the undergraduate medical curriculum at the University of Witwatersrand in South Africa takes six years to complete with two entry points for students (Green-Thompson, McInerney, Manning, Mapukata-Sondzaba, Chipamaunga and Maswanganyi 2012). The first is the undergraduate entry point that allows students from high school access to the first year of study while the second entry point is via the graduate class. The admission policy allows the two groups to follow the same programme in a single track of three to six years of the medical degree. During this period, the faculty is expected to impart theoretical and practical knowledge to students that include among others, knowledge of medical and healthcare ethics and practice. The faculty faces a number of challenges in their endeavours that include among others, deficiencies for regulating nursing education, lack of innovative teaching to improve medical ethics, lack of educator specialization and information supports (De Villiers, 2015).

Amonoo-Kuofi, Danso, Gyader, Tettey and Anderson (2012) in the context of Ghana assert that the country's medical education has a sophisticated administrative structure for the supervision of medical education and accreditation. In contrast in Mozambique, Sousa Jnr, Schwalbach, Adam, Gonçalves and Ferrinho (2007), point out that medical education faces several difficulties that include lack of medical library facilities, shortage of medical faculty, poor conditions of service which also affect medical professionals' job performance.

1.1.2 Medical Education in Nigeria

Teaching hospitals in Nigeria provide teaching, learning, research, patient care and other community services. The Nigerian Health Sector Survey in 2011 listed the objectives of the tertiary health institutions in Nigeria, the main objective being to provide the best quality care possible. The healthcare provision is expected to be commensurate with available skills, specialised knowledge, and advanced technology and the teaching hospitals are to serve as referral centers for other hospitals, manpower development and training (Nigeria Health Sector Survey, 2011).

The establishment of the University College Hospital, Ibadan in 1948 was the beginning of medical education in Nigeria (Isiekwe, Sofola, Sanu and Oredugba 2013). Ibrahim (2007) points out that there are four generations of medical schools in Nigeria offering different programmes. There are other two notable certified licensing bodies that coordinate the postgraduate medical education in Nigeria namely: National Postgraduate Medical College (NPMC) and West African Postgraduate Medical College (WAPMC) with roles and

responsibilities for postgraduate medical education (Isah 2012). The bodies ensure the quality of medical education on offer, the National Medical and Dental Council of Nigeria provide oversight of the medical schools. The Councils also ensure that medical institutions have requisite facilities, human capacity and infrastructure to achieve effective and efficient service delivery, ethical and regulatory compliance.

Erinosho (1990), examined health care services in Nigeria in a study that found that the medical environment consisted of a range of formally trained personnel, training institutions and treatment facilities. The study revealed that there were 16, 033 medical professionals, 50, 946 registered nurses, 42, 423 registered midwives, 4, 080 pharmacists, 13 teaching hospitals and approximately 7, 647 government-owned health care institutions in Nigeria. These figures will have inevitably changed because a recent audit by Medical and Dental Council of Nigeria shows a substantial increase in the number of medical professionals in Nigeria (Council, 2015). Amaghionyeodiwe (2008) revealed that growth in hospitals and health care facilities in Nigeria by 1993 had reached 3,061 and 3,987 by the year 2000. This growth has continued and inevitably created the need for more medical faculty and information resources to meet faculty information needs.

Tertiary healthcare training institutions in Nigeria conduct research into various diseases and are expected to proffer solutions to medical problems through treatments, administration of drugs and other medical therapies. Ademuyiwa, Ameh, Bode and Adejuyigbe (2011) noted that Nigerian healthcare professionals in the tertiary health institutions spend more time with students than in the consultancy units. Medical faculty in Nigerian tertiary health institutions, therefore, require a well-coordinated information service for clinical practice.

Abosede and Sholeye (2015) submit that the Nigerian government has ensured a wide range of medical facilities that include the basic health centres, maternity hospitals, general hospitals, federal medical centers, specialist hospitals and the teaching hospitals that serve as referral centers. These facilities cater for large numbers of Nigerians needing healthcare services. For example, Asangansi, Adejoro, Farri and Makinde (2008) found that 12 million patients received healthcare services at the University College Hospital, Ibadan alone during that year.

1.1.3 Information Behaviour of Medical Faculty

Davies, Rafique, Vincent, Fairclough, Packer, Vincent and Haq (2012) assert that information

that is publicly available can be shared to enable people to perform various tasks in their private and official capacities. The need to make choices among several information sources leads to variations in faculty information behaviour. Wilson (2000:50) refers to information behaviour as "the totality of human behaviour in sources and channels of information seeking and information utilisation". Information behaviour, therefore, transcends traditional ways through which people seek and use information (Case 2012:146). Information behaviour therefore encompasses information needs, information seeking, information utilisation, information sharing, information sources and information communication/dissemination.

Ndosi and Newel (2010) aver that professional judgement in the administration of medicines requires reliable, evidence-based information sources for medical professionals in their roles of teaching, research and patient care. The importance of providing reliable information to medical professionals including medical faculty to fulfil their professional and occupational demands cannot be underestimated.

Today, the information needs of medical professionals have become so broad and challenging because of the complex environment in which practitioners find themselves. To meet their information needs medical faculty requires access to some information types with special tools to understand and use information especially when performing medical tasks in the laboratory, classroom and hospital wards. Booth and Meijman (2011) revealed that medical professionals need ready information that can help solve their immediate clinical problems without delay.

Research on information behaviour of medical professionals abounds in the literature although this is limited when narrowed down to medical faculty in Nigerian tertiary health institutions. For instance, Al-Muomen, Moriss and Maynard (2012) observed that many extant studies on information behaviour during the last decade have been concentrated in the areas of psychology and information science but hardly in the medical sciences.

Several reasons have been advanced in the literature as to why medical professionals seek information. Baro and Ebhomeya (2013) revealed that motivation for nurses to search for information in the Nigerian context was related to patient care, improved medication administration and better job performance. Gatero (2010) outlined the motivation for seeking information by medical faculty as the need to understand and perform tasks related to patient care/clinical information, pharmacological information, current approaches to treatment,

modalities, current practices in medical and clinical trials.

About sources of information used by medical faculty, Shabi, Shabi, Akewukereke and Udofia (2011) in a cross-sectional descriptive survey of physicians in the tertiary health institutions in Osun State, Nigeria found information sources used by medical faculty. They enumerated that the physicians relied on colleagues, medical textbooks, conferences, medical databases, printed journals, drug formulary, medical library resources and pharmaceutical representatives as the preferred sources of information.

1.1.4 Site of the Study

The study was carried out in Kwara State, situated in the north-central geopolitical zone of Nigeria. The state has a population of 2,371,089 (Babatunde, Adenuga, Oloyede, and Osasona, 2014). It shares boundaries with Oyo in the north and central, Ekiti, Osun and Kogi in the south, Niger and the Benin Republic from the north. Kwara state is located 600 km from the Federal Capital Territory, Abuja covering an estimated area of 32 500 km^2. Ilorin, the state capital, covers five Local Government Areas (LGAS) that include; Asa, Ilorin East, Ilorin South, Ilorin West and Moro Local Government Areas. It comprises several Nigerian major ethnic groups and other minority groups. The city (Ilorin) lies on the Latitude 8^0 30'N and Longitude 4^0 35'E. The location of Kwara State is as shown in the map of Nigeria in Figure 1.1 below.

Figure 1.1 Map of Nigeria showing Kwara State (Source: Kwara State Government, 2010)

The healthcare in Kwara State (Nigeria), is high on the agenda of government with the focus placed on the provision of comprehensive, quality and accessible care to the citizens. In an effort to achieve the healthcare goals of the state, in recent years the government has increased medical, and health institutions in each local government; and upgrading of quality and scope of services in existing hospitals and other health institutions has been undertaken.The tertiary health institutions in Kwara State include:

- College of Health Sciences, University of Ilorin

- Kwara State College of Nursing and Midwifery, Ilorin

- Kwara State College of Nursing and Midwifery Oke Ode

- Kwara State School of Health Technology Offa

- Specialist Hospital Oke Ode

- Specialist Hospital Sobi Ilorin

- University of Ilorin Teaching Hospital, Ilorin

- Children's Specialist Hospital, Center Igboro

The study was based on the following three selected tertiary health institutions: the College Health Sciences University of Ilorin, Kwara State College of Nursing and Midwifery, Ilorin and Sobi Specialist Hospital, Ilorin.

College of the Health Sciences University of Ilorin established in 1977 and was converted to collegiate status in June 2004 by the approval of the Nigeria National Universities Commission (NUC). A provost heads the current college structure whereas deans are heads of the two faculties: Basic Medical Sciences and Clinical Sciences. Kwara State College of Nursing and Midwifery, Ilorin, was founded in 1973 and later merged with Kwara State School of Midwifery in 2006. The College is now called Kwara State College of Nursing and Midwifery and is headed by the Provost and assisted by directors and deputy directors as academic head of the departments. Sobi Specialist Hospital, Ilorin, was established by the Kwara State Government in April 1985 with a 264-bed health facility. Sobi Specialist Hospital has 12 health departments offering internships, nursing practical for students and health services to the residents of Kwara State and neighbouring States (Bello, 2011). Figure 1. 2 below shows Kwara State and her 16 local government areas (LGAS).
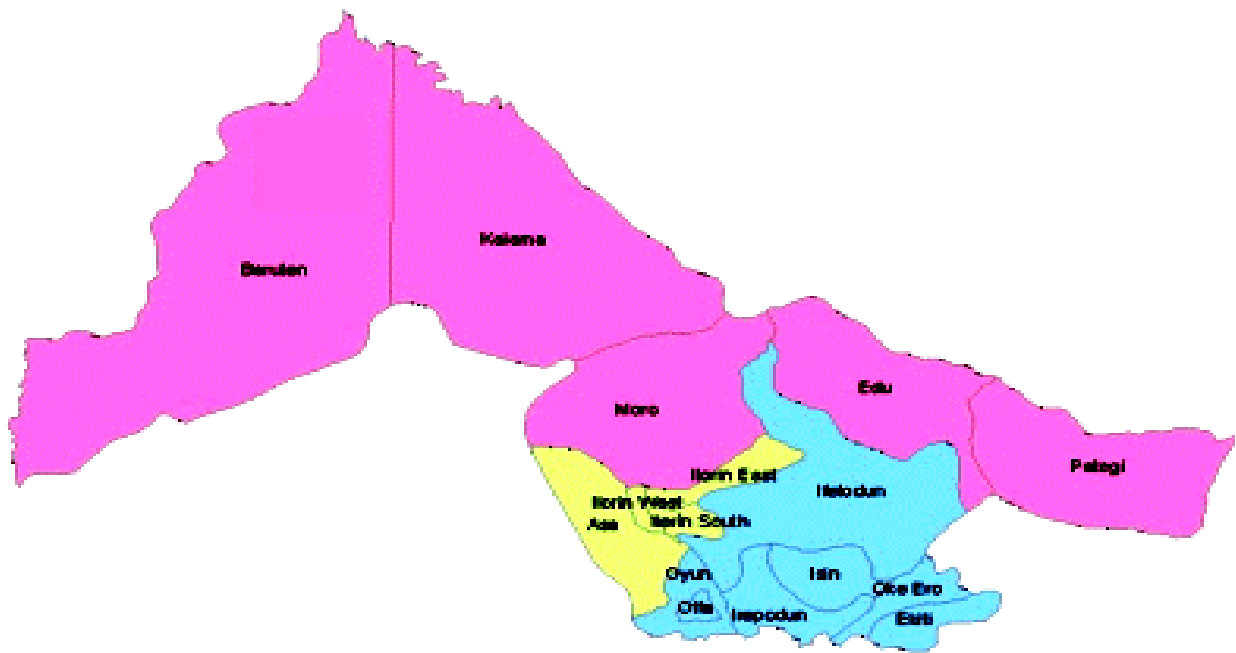
Figure 1.2 Map of Kwara State (Source: Kwara State Government 2010)

1.2 Statement of the Problem

Health and population programmes are integral to the national and state policies in Nigeria given their importance to national development. The Nigeria National Population Commission according to Demographic Health Survey (2013) recorded that Nigeria has a population of 162, 265,000 with a life expectancy of 52 years. Most of this population (80%) according to Dosunmu (2005) lives in the rural areas making healthcare services delivery of critical importance. In the pursuance of healthcare delivery, the Nigeria constitution provides for quality and accessible public health services for all the citizens irrespective of where they reside (Brown and Augustine 2014). Abdulraheem, Olapipo and Amodu (2012) point out the need to provide current and adequate information to medical faculty to enable them to meet their education and clinical practice obligations for improved health care delivery.

The study of medical and healthcare professional involvement in organized medical education is a new and emerging discipline that requires a careful and urgent attention. In this regard, Moote, Krsek, Kleinpell, and Todd (2011) suggest that current and future research should focus on the identification of information needs and how such needs can be met for the overall effectiveness of medical education. Medical faculty, because of their multiple roles in teaching, research and patient care require specialised information (Gerolamo and

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Roemer, 2011). Medical education, particularly in the developing countries such as Nigeria has certain difficulties associated with it namely inadequate healthcare personnel, inadequate facilities and infrastructure. Moreover, in the tertiary health institutions in Kwara State inadequacy of information resources and personnel has sometimes led to accreditation failure (Musa and Omopupa, 2005; Ayeni and Oyebanji, 1996; Akinade 2000). Consequently, there is need to deepen our understanding of the information behaviour of medical faculty so that appropriate interventions can be designed to provide medical faculty with the right and timely information to support their teaching, research and patient care roles.

The outcome of this study is expected to help the formulation of new policy and practical intervention such as infrastructure development and capacity building to enhance the research, teaching and practice of medical faculty. Furthermore, the outcome of the study would provide the basis for budgets decisions for collection development to improve the work of medical faculty.

1.3 Study Assumptions

1. Medical faculty have unique information needs given the specialized nature of their work

2. Medical faculty in tertiary health institutions in Kwara State Nigeria are not making effective use of information resources because they lack information /digital literacy skills.

3. Librarians in health tertiary institutions in Kwara State Nigeria lack deep understanding of the information behaviour of medical faculty.

1.4 Objectives of the Study

The main objective of this study was to investigate the information behaviour of the medical faculty in tertiary health institutions in Kwara State, Nigeria. The main objective was subdivided into the following specific objectives:

1. To examine the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria.

2. To ascertain how medical faculty expresses their information needs in meeting their job-related roles.

3. To show how medical faculty in the tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care.

4.   To find out the information sources available to the medical faculty in tertiary health institutions.

5.   To explore the problems encountered by medical faculty while seeking, sharing and utilising medical information and how such problems are overcome.

1.5 Research Questions

This study investigated information behaviour of the medical faculty in tertiary health institutions in Kwara State, Nigeria. In qualitative studies and some mixed methods studies (especially where qualitative approach is more dominant) research question can suffice and hypotheses are not necessary (Creswell 2002). However, the research questions investigated were the following:

1.   What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria?

2.   How do medical faculty express their information needs in meeting their job-related roles in tertiary health institutions?

3.   How does medical faculty in tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care?

4.   What are the information sources available to the medical faculty in tertiary health institutions?

5.   What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how are such problems overcome?

1.6 Delimitation of the Study

The study covered three selected tertiary health institutions in Kwara State Nigeria that have the highest number of medical personnel involved in the training of medical staff. The state borders five states and an international boundary with Benin republic that make her tertiary health institutions to be destination for learning, high profile medical research and medical care center for people. The study, surveyed doctors and nurses whose job roles include teaching, research and patient care. Management staff including the heads of institutions, deans, and heads of departments and medical librarians were also involved in the study.

The study was constrained by the paucity of related literature on information behaviour of medical faculty in the developing and developed countries. The study was also underpinned by the information behaviour models of Wilson (1981), Wilson (1994) Kuhlthau (1988), Krikelas (1983) and Leckie, Pettigrew and Sylvain (1996) that were developed in countries that are not similar to Nigeria. Although, principal models adopted for this study are Wilson (1994) and Leckie *et al.* (1996) models. Therefore the extent to which these models could successfully be used to underpin the study in Nigerian context may need to be a subject of a separate study.

1.7 Significance of the Study

The study revealed information infrastructure gaps to effectively support access to information by medical faculty to facilitate their teaching, research and patients care roles. However, the outcome of the study is expected to contribute to policy, practice and theory in various ways. Therefore, policy in this regard is needed to promote relevant infrastructural and human capacity development.

This study is anticipated to deepen the understanding of medical faculty information needs, sources of information used for teaching, research and patients care roles. It will also bring to forefront their patterns of information utilisation, and sharing and use in order to improve patient confidence in health care delivery services in Nigeria. The findings are expected to create practical demonstration mechanisms that will enhance the adoption and utilisation of electronic information resources by medical faculty in Kwara State who currently rely on books and other print information sources to meet their information needs.

1.8 Principal Theories Underpinning the Research

This section outlines the information behaviour models that are covered fully in Chapter Two of the thesis. These information behaviour models are authored by Kuhlthau (1988), Wilson (1981, 1994, 1999), Krikelas (1983), Leckie, *et al.* (1996) among others. These models are commonly used for studying information behaviour in different contexts. Wilson's (1981) information behaviour model focuses on users in their quest for information choices. Wilson's (1994) model explains that information behaviour includes information need, information seeking, information use, information exchange and information transfer that result either in satisfaction or non-satisfaction by the user. The Wilson (1994) model of information behaviour further portrays the information user as performing a search, sharing, and transferring search results. Wilson's (1999) information behaviour model asserts that users'

action when looking for particular information is informed by their perceived present state hence information behaviour should consider users' background knowledge. Krikelas's (1983) information seeking behaviour model in contrast, emphasises both the importance of uncertainty as a motivating factor and the possibility of the information seeker retrieving an answer from their personal memory or their colleagues.

Kuhlthau's (1988) information behaviour model depicts a series of cognitive and affective behaviour to human thoughts in finding and evaluating information for use. Kuhlthau (1988) focuses more on affective and cognitive effects of seeking information and not in a particular group or task. Leckie *et al.'s* (1996) model of information behaviour focuses on researchers and scholars who are in the fields of science, law, medicine, and engineering. The model shows information seeking as two-way pointers, namely information sought and its outcome. Moreover, the model illustrates the ways of information seeking, types of information sought and the sources of information to satisfy a need.

This study was underpinned by the information behaviour models of Wilson (1994) and Leckie *et al*. (1996) as the theoretical framework. No single model of information behaviour on its own was found suited in addressing all the research questions in this study. These information behaviour models jointly explained the diversity of job roles and tasks as motivating factors for seeking information which stimulated information seeking and utilisation for tasks completion.

The mapping of the research questions and the variables of the information behaviour models of Wilson (1994) and Leckie (1996) underpinning the study are as shown in Table 1 of Chapter Two.

1.9 Preliminary Literature Review
The detailed review is covered in Chapter Three of this thesis. The literature reviewed is from books, journal articles, conference proceedings, technical reports, theses/dissertations, etc. The literature is reviewed from both the developed and developing country contexts including Nigeria. The themes about which literature is reviewed include: information behaviour, information seeking, information expression, information sources, and information utilisation, information exchange and information utilisation and information needs of medical faculty.

From the reviewed literature, gaps that are revealed include paucity of studies focusing on

information needs of medical faculty, and the concentration of studies in the developed world context. Limited studies exist about the information behaviour of medical faculty in the Nigerian context. The extant studies seem to ignore the philosophical and theoretical underpinning of research as well as limited use of triangulation that combine both qualitative and quantitative data.

1.10 Research Methodology

This section provides only a brief summary of the research methodology that is used for this study. A more detailed description of the research methodology is covered in Chapter Four (Research Methodology). The Post-positivism paradigm was adopted in this study to suit the research problem which required the collection of quantitative and qualitative data. The quantitative data were collected using a survey questionnaire while the qualitative data were collected through in-depth interviews. The survey questionnaire was used to collect data from medical faculty on information needs, information sources, information utilisation, information sharing. The interviews were used to collect data on roles, infrastructural policies, information services and information needs from the management staff that include the head of institutions, deans, heads of departments and medical librarians.

The study used a descriptive survey design. The population of the study consisted of management staff, deans, heads of departments and medical faculty (inclusive of medical librarians). The Statistical Package for Social Sciences (SPSS) version 21 was used to analyse the quantitative data collected through the survey questionnaire. The data gathered were coded, cleaned, analysed and presented using frequencies and percentage. Data collection through interviews were recorded, transcribed and results presented thematically.

A pilot study for ensuring the validity and reliability of the results were pre-test with the survey questionnaire and interview schedules at Ladoke Akintola University Teaching Hospital, Ogbomosho (LAUTECH) in Nigeria. The Exploratory Factor Analysis (EFA) was then used to describe variability among observed correlated variables. Results from the pre-test indicated that the observed variables used for the study instruments were sufficient to give an adequate research response that would substantiate the purpose of the survey (see Chapter Four for details). Furthermore, the survey questionnaire and semi-structured interview schedules were given to experienced senior researchers at the University of KwaZulu-Natal (UKZN) for input before administering the tools to respondents.

Concerning ethical considerations, the study complied with the University of KwaZulu-Natal ethics protocol. Also, permission was sought and granted by the tertiary health institutions in Kwara State that participated in the study.

1. 11 Structure of the Thesis

This thesis comprises of seven chapters. The breakdown of the seven chapters is as discussed below.

Chapter One: Introduction

This chapter outlines the introduction to the study, statement of the problem, the significance of the study, research objectives, research questions and the delimitation of the study. In addition, summary of principal theories, preliminary literature of the research, and research methodology are outlined with the structure of the thesis.

Chapter Two: Theoretical Framework

This chapter covers information seeking behaviour models and how they are appropriate for the research problem investigated in this study. A mapping of the research questions onto the variables of the research questions is provided.

Chapter Three: Literature Review

The chapter discusses related literature from the developed/developing countries and the Nigerian context. The gaps in the literature reviewed are isolated and how the current study addresses them adduced.

Chapter Four: Research Methodology

Chapter Four discusses the research paradigm, research approach, research design, population, sampling procedures, data collection procedures, validity and reliability of research instruments, data analysis and ethical considerations.

Chapter Five: Presentation of Findings

This chapter analyses and presents the research findings using descriptive and inferential statistics.

Chapter Six: Discussion and Interpretation of Findings

This chapter discusses and interprets findings using extant literature, data collected and theoretical models that were used to underpin the study.

Chapter Seven: Summary, Conclusion and Recommendations

This chapter is the final chapter of the thesis and provides a summary of the study/findings, conclusion, recommendations, originality and contribution of the study to policy, practice and theory.

1.12 Summary

Chapter one discussed the introduction to this study which covers study context, medical professional education around the world, medical education in Nigeria, information behaviour of medical faculty, discussion of the study site and statement of the problem. Other objectives of the study, research questions, delimitation of the study and significance of the study, discussion in chapter one touched on the principal theories underpinning the research, preliminary literature review, research methodology and structure of the thesis.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

This chapter presents the theoretical framework underpinning the study. The study aimed at investigating the information behaviour of the medical faculty in three tertiary health institutions in Kwara State, Nigeria. The study addressed the following research questions:

1. What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria?

2. How do medical faculty express their information needs in meeting their job-related roles in tertiary health institutions?

3. How does medical faculty in tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care?

4. What are the information sources available to the medical faculty in tertiary health institutions?

5. What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how are such problems overcome?

Theoretical frameworks guide a researcher by providing the theoretical perspective or lens to examine the chosen topic. Malterud (2001) observed the theoretical framework is like reading glasses worn by the researcher when she or he asks questions about the research. Theory connects the researcher to existing knowledge with a pointer to relevant research methods. The theory may be articulated or shown in written and graphical form. Pettigrew and McKechnie (2001) described the theory as a lens that inspires and guides practical research achievements in a concrete way and it is a mental construct that guides the discussion in research and other academic engagement. The mental construct deliver the research problem to the theory that provides the basis for unraveling the research problem through the right model and its constructs. However, theoretical models focus on limited problems than theories and in some other on case studies, whereas models may precede the development of theories (Case, 2002; Ge, 2005). The theoretical framework is therefore akin to a travel plan which guides the researcher through the study in the investigation of a chosen phenomenon (Sinclair, 2007).

According to Wilson (1999) a theoretical model can be said to be a " framework for

thinking about a problem and may evolve into a statement of the relationships among theoretical propositions" (Wilson, 1999). Spink, Wilson, Ford, Foster and Ellis (2002) assert that a theoretical framework focuses on dimensions and not on specific differences in information-seeking contexts in understanding phenonmenon. However, Brink, van der Walt and Rensburg (2007) argued that selection of theory depends on its appropriateness, ease of applicability and explanatory power. Theory therefore, will strengthen this study, evaluate assumptions by taking cognisance of the model variables in the study and job roles of the medical faculty.

Several theoretical models are available in the literature for studying information behaviour. These models include among others Wilson's (1981) model of information behaviour; Ellis's behavioral model of information search strategies (Ellis, 1989; Ellis, Cox and Hall, 1993), Kuhlthau's model of information seeking behavior (Kuhlthau, 1983, 1991, 1993); Dervin's sense-making theory (Dervin, 1983, 1986) and Wilson's 1999 model of information behaviour which is an expansion of Wilson's 1981 model of information behaviour. In this study, information seeking behaviour models discussed include those of Wilson, (1981); Wilson, (1994); Krikelas, (1983); Kuhlthau, (1988); and Leckie, Pettigrew and Sylvain, (1996) models on information behaviour. However, Wilson's (1994) and Leckie *et al.'s* (1996) models of information behaviour were found to be the most suitable for examining information behavior of medical faculty. These information behaviour models are described as being at the pre-theoretical stage, concentrating on diagrammatical descriptions of statements and indicating causes, factors, and consequences, rather than on the theoretical stage where relationships among theoretical propositions are described (Mostert and Ocholla, 2005). The information behaviour models are discussed in relationship to their variables and how they have been applied in previous related studies. Further examination is undertaken to uncover their strengths and weaknesses as earlier used in the previous information behaviour studies.

2.2 Wilson's 1981 Information Seeking Behaviour Model

Wilson's 1981 information seeking behaviour model was one of the earliest models of information behaviour that captured major constructs of information seeking behaviour from the angle of user's information seeking and use. Wilson's 1981 model focuses on the information user, information need, information seeking, information sources, information exchange, information transfer and results. It also covers information

seeking, satisfaction and non-satisfaction success and failure as shown in Figure 2.1.
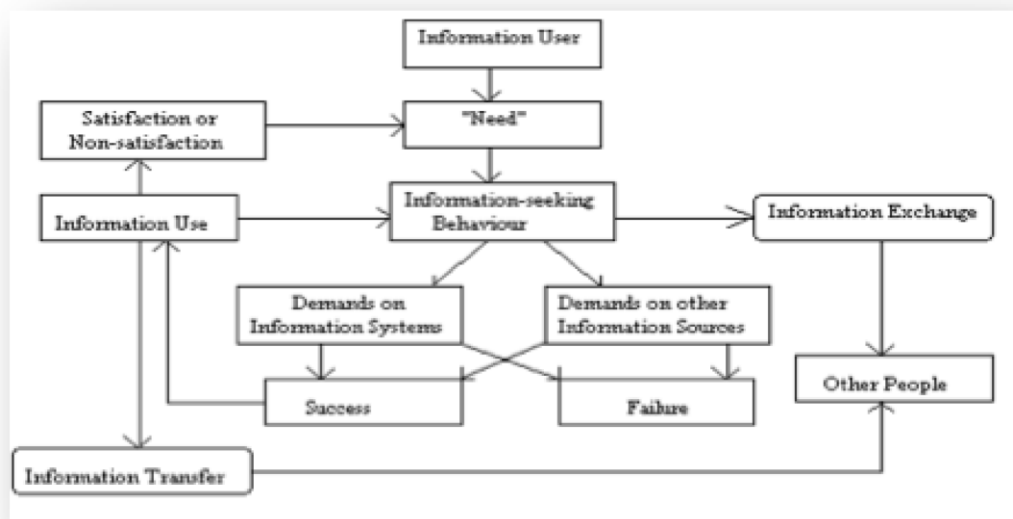
Figure 2.1 Wilson (1981) Information seeking behaviour model (Source: Wilson 1981)

Information seeking behaviour in Wilson's 1981 model provides an explanation on when the user realises a need to satisfy and exhibits numerous information seeking behavioural patterns. These behavioural patterns instigate information seeking behaviour that sends a signal to available information systems. The users can alternatively make a request for other varying information sources outside of the library to satisfy their needs including reliance on other people through information exchange. The results of information demands may lead to failure or success. Success is achieved if the information is 'used' and failure when information 'found' cannot be used (Al-Dousari 2009).

 In most cases, information considered useful according to Wilson (1981) is passed to others as an exchange and in some instances eliminating repetition of efforts in seeking for the same kind of information by the user and the exchange recipients.

Wilson (1981:2) theorises that:

> *"information-seeking behaviour results from the recognition of some need, perceived by the user that may take several forms. For example, the user may make demands upon formal information systems (such as libraries, on-line*

services, Prestel or information centres). The systems information functions in addition to a primary, non-information (such as estate agents' offices or car sales agencies, both of which are concerned with selling, but which may be used to obtain information on current prices, areas of 'suitable' housing, or details of cars that hold their second hand value."

The above explained the evolving information need of individual that will lead to making a demand on the information system if there is a specific information need to be met. At this stage the user exhibits varying behaviour depending on kind and level of prior knowledge and skill of searching that assists in making helpful information choices.

Various scholars have highlighted the strength of Wilson's 1981 model. Ellis (1993) posits that Wilson's 1981 model is particularly appropriate to the study of the needs underlying information seeking behaviour of users. Moreover, Ellis points out that Wilson's 1981 model is suited for uncovering the facts of everyday life of the people being investigated. Ingwersen and Jarvelin (2005) described Wilson's model of 1981 as one of the best theoretical models in information seeking. They point out that the model has embedded in it the concept of information, information need, information seeking and utilisation. Ingwerson and Jervelin (2005) further assert that Wilson's 1981 model identifies many factors affecting information behaviour though it does not analyse work tasks and individual situations or contexts in detail. Wilson's (1981) model recognises other than work roles such as social roles of information sharing and collaboration with others as influencing information system design in various contexts.

Prigoda and Mckenzie (2007) however outline some weaknesses of Wilson's 1981 model which need to be recognised when applying the model to information behaviour research. The weaknesses of the model according to these scholars include the fact that Wilson's 1981 model ignores questions of sources, characteristics and personal preferences of users (Stokes 2013). In addition, the model is said to generalise information seeking irrespective of users' occupation or roles and without analysing type and extent of information sources or sufficiency of available information to meet the needs of information users. Case (2006) also critiques Wilson 1981's model saying it attaches little or no importance to documentary information sources that form the largest information sources. Morever, the model focuses only on a larger information system that is not definitive on a particular information source or sources among the several

information resources that are inclusive of manual and automated sources. The Wilson model also does not give reasons for the need of the information by the information seeker or the purpose for which information is needed. The model also does not cover a particular group of people's information behaviour thereby limiting it to specific roles for which the information sought is applied (Wilson 1999).

Although the model is also flexible to job roles, it covers everyday information embedded for information seeking behaviour (ISB) concepts and user choice, shows interrelationships in ISB and provides the foundation for future studies even though it was debuted before the adoption of the computer (Evans and Chi, 2010).

The weaknesses of Wilson's 1981 model of information behaviour made it unsuitable for this study because it does not comprehensively covers how information can be applied and exchanged among professionals. The model does not also take into account the success or failure of information use as a result of satisfaction or non-satisfaction in relationship to job outcomes. Furthemore, Wilson's 1981 model is not limited to a particular job task, individual situations are not considered, ignores personal information preferences and underestimate documentary sources. It also did not include reasons for an information need, seeking, utilisation, sharing and collaboration that were emphasised by Reddy, Dourish and Pratt (2006) in their study on medical workers information behaviour.

2.3 Wilson's 1994 Information Behaviour Model

Wilson's 1994 model is an improvement on his earlier model. This model focuses on how people use information sources and services, information exchange, and information transfer.

The constructs of the Wilson's 1994 model (see Figure 2.2 below) include information user; information need; information seeking behaviour; information exchange; information system; user satisfaction/non satisfaction among others. Wilson (1994) explained that users seek information through the demonstration and application of cognitive and affective information seeking behaviour especially where information is required for task completion. According to this model, information seeking is exhibited by relying on the information system and other information sources which may either lead to success or failure. In the process of information seeking, the application of

personal feelings are validated in the process of seeking and utilisation of information for job routine. It is significant to note that success or failure of an information search does not connote the end of information seeking in Wilson's 1994 model. An information user's experience is seen as a continuing process. Wilson (1994) asserts that successful information seeking will eventually lead to information use, satisfaction and invariably information transfer and exchange. However, only information which is sought and successfully used can be transferred to others. Satisfaction and non-satisfaction of the information used does not connote that the information cannot be exchanged or transferred as long as it can meet the demand of the other and the experience gained in the search can be transferred or exchanged to meet others need.

Hjørland (2013) noted that Wilson's 1994 model has grown to become one of the most used models in LIS. Hjørland (2013) pointed out that earlier information behaviour studies were broad and focused more on library use and users without taking into account constructs that now form the recent information behaviour models. The Wilson 1994 model of information behaviour is shown in Figure 2.2 below.
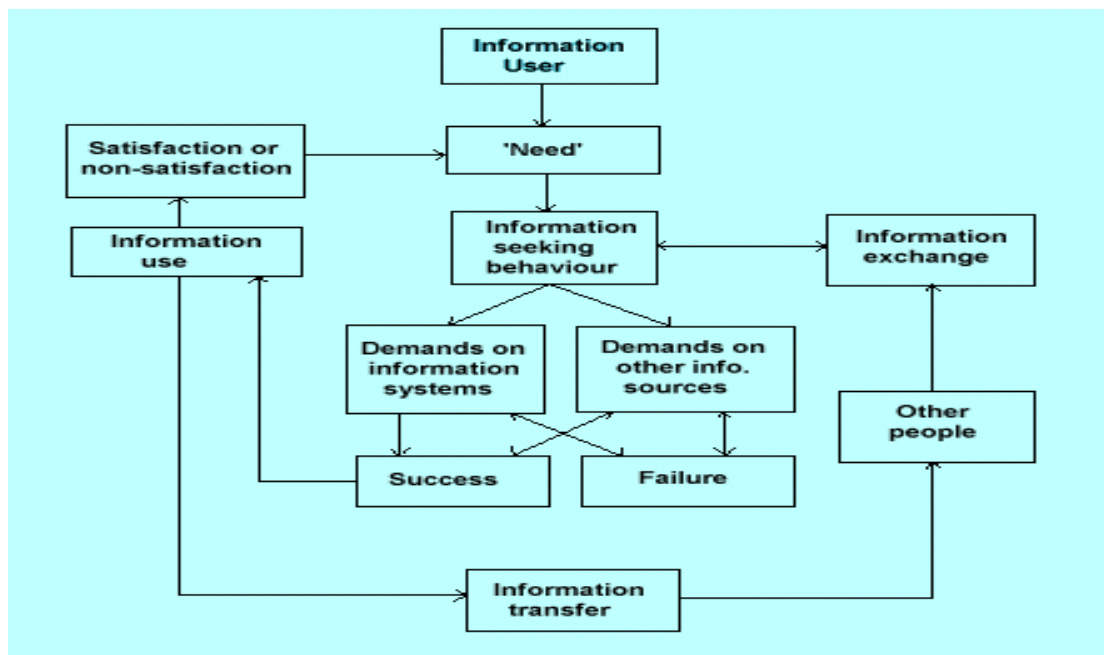
Figure 2.2 Wilson's information behaviour model (Source: Wilson, 1994)

The Wilson model of 1994 of information behaviour covers the variables of information need, information seeking, and information awareness, information sharing, information

transfer and exchange. This Wilson model demonstrates that information seeking leads to success or failure (satisfaction or non-satisfaction). This Wilson model suggests that users will successfully use the sought information, and consider information worth sharing before exchanging it with others to lessen their effort in searching for similar information. The other distinctive feature in the constructs of Wilson's 1994 model is the fact that information seeking leads to information exchange; and alternatively information exchange leads to information seeking. The model also asserts that information usage does not necessarily result in information seeking, unlike Wilson's 1981 model.

Ellis (1996) observed that Wilson's 1994 model attempted to integrate the features of different approaches to information seeking. The model varies from previous information seeking behaviour models that mainly concentrated on how people seek and use information without considering information search outcome. Another Wilson's 1994 model captivating feature is that it focuses on other aspects of user's information seeking behaviour such as the social role of information users investigated.

Wilson (1994) has been criticed by some researchers. Savolainen (2007:115) is of the view that Wilson's 1994 model does not discuss the relationships between "interior" and "exterior" components of information seeking behaviour but instead it is devoted to identifying those aspects of information seeking and related activity that do appear to be identifiable, observable and hence researchable. This is an additional basis for suitability of the model for this study as the medical faculty focuses on specific goals and job roles in the process of seeking, expression, use and sharing of information.

Despite the weaknesses of the Wilson 1994 model, it has been successfully used to investigate scientists, teachers, students and social workers in science and technology, and the humanities. Revere, Turner, Madhavan, Rambo, Bugni, Kimball and Fuller, (2007) examined information needs, information seeking behaviour and human-computer interaction applicability using Wilson's 1994 model as the theoretical lens. The study was conducted at the University of Washington on the information needs of public health professionals. The outcome from the study demonstrated the need to expand the Wilson model of 1994 in order for the model to cover work roles scenarios succinctly.

Odhiambo (2000) examined the information behaviour of Kenyan medical scientists

using Wilson's (1994) model. The study revealed information need as a precursor to information seeking while information searching forms another component that leads to manipulation of available information system and sources. The study also found that information searching behaviour is paramount to professionals like medical faculty with already known familiar information sources. Dinet, Chevalier and Tricot (2012) attributed that Wilson's (1994) model does not cover a particular occupation but deals with information need task completion without flexibility for dealing with user's information searching skill.

However, Lee and Downie (2004) posited that the goal of information needs and uses is to capture the real-world expressions of users' actual information-seeking behaviours unmediated by any particular set of information channel as provided in the Wilson 1994 model. The position showed that Wilson's 1994 model reflects user's feelings for an information need, seeking, exchange and sources, demonstrate the circumstances for task completion. The model also considered information used before exchange and search failure and success as useful experience and belief that information need prompt information seeking (Eskola 1998). Therefore, Wilson's 1994 model has been used in this study to help address research questions 1. What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria? Research question 2. How do medical faculty express their information needs in meeting their job-related roles in tertiary health institutions? Also the research question 4. What are the information sources available to the medical faculty in tertiary health institutions? And research question 5. What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how are such problems overcome?

2.4 Krikelas (1983) Information Seeking Behaviour Model
Krikelas's 1983 information seeking behaviour model is revelatory in emphasising the importance of uncertainty as a motivating factor for seeking information to meet varying needs. Krikelas (1983) notes that information seeking arises when someone recognises that the current state of knowledge is no longer sufficient to deal with some issues or the person's job role. Krikelas's model embraces three phases: information need, creating an environment, information gathering and information sources where information can be found from internal or external sources (Kuhlthau, 1988). Krikelas's model has 13 itemised components as shown in Figure 2.3.

Figure within image labeled: **Krikelas Model (everyday behavior)**
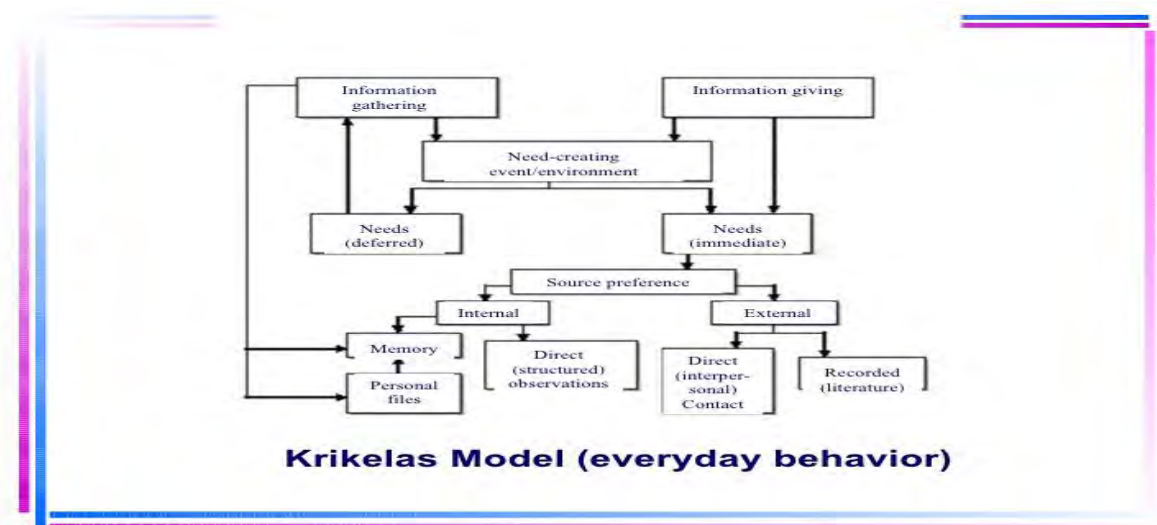
Figure 2.3 Krikelas's information seeking behaviour model (Source: Krikelas, 1983).

The variables in the Krikelas's information behaviour model consist of information need, creating events or environment, information gathering, immediate information need, deferred information need, internal and external information sources; direct observation, personal memory, and files; direct interpersonal information sources; recorded information sources. Krikelas's 1983 model is suitable for examining information seeking behaviour in different areas of human endeavour. Krikelas's information seeking model focuses on activities that identify messages to satisfy perceived information needs. Krikelas's information seeking behaviour model reveals that information gathering comes from an environment that creates the need for information seeking, utilisation and sharing. Case (2012) observed that Krikelas' model emphasises the importance of uncertainty as a motivating factor for an information seeker to retrieve information from both the internal and external information sources.

Krikelas's model has been criticised by Eisenberg and Brown (1992) as evidently being a linear model lacking complexity and flexibility necessary to adequately cover information searching skills of information users. Nevertheless, the model has been widely used to study information behaviour relating to work environments and job roles. For example, Corcoran-Perry and Graves (1990) adopted Krikelas's model as a framework for investigating supplemental information seeking behaviour of cardiovascular nurses. The study used self-report and observation-interview. The study

showed and confirmed the desirability of using the model to study the information-seeking behaviour of healthcare professionals. Previous researchers (Gorman and Helfand 1995; Williamson 1998; Gorman, Ash and Wykoff 1994; McKenzie 2003; Dervin and Nilan 1986) adopted Krikelas's information seeking behaviour model partly or wholly. These earlier studies found that Krikelas's model is appropriate for studying the information behavour of users in different contexts.

The strength of Krikelas's model also lies in the fact that it is not restricted to examining the information behaviour of one type of occupation. Spink, Foster, Prabha, Silipigni Connaway, Olszewski and Jenkins that (2007) suggest that the characteristics of Krikelas's 1983 model covers all areas of human information behaviour but concentrate more on immediate needs. Shenton and Fitzgibbons (2010) point to the model as been developed on the assumption that information need related to motivation and information sources for user's circumstances. However, it does not suit routine professional job roles like that of the medical faculty. However, the model does not cover a particular occupation and it is limited in dealing with information need task completion and lacks flexibility for dealing with users' information searching skills. It requires an update to meet the current tide of information creation that will address not only the sundry information needs but need that are related to job outcome (Sawant, 2015).

Given the forgoing, this study will not adopt Krikelas's model since it does not address all the study variables, research questions and was designed to address qualitative research approaches.

2.5 Kuhlthau's (1988) Information Seeking Behaviour Model

Kuhlthau's (1988) model of information behaviour is based on an investigation of college-bound high school seniors in the US using the qualitative approach. The study examined how students apply library skills to library research. From the study, Kuhlthau's model developed the information seeking behaviour model that shows three levels of affective, cognitive changes and actions in the following seven stages: initiation, selection, exploration, formulation, collection, presentation and assessment (see Figure 2.4).

The task initiation set the stage for the purpose for which the information is required leading to the completion of tasks for which the information is required. This is followed

by strategies for the information search process to determine what is already known by the information user and on what specific goal the search focuses. Then exploration of the information collection available is followed by the actual search and conclusion of the successful search. The affective feeling component measures the extent to which available information sources have affected the information search pattern of the information user, while the cognitive feeling shows the level of what is already known and applied to the information search and information needs of the users.

The last level illustrates the action time when information seeking moves through exploration of pertinent information sources from the wide range of available information sources and documenting relevant sources. Kuhlthau's model demonstrates that contextual and social factors seemed to affect group members' physical activities and their cognitive and emotional experiences during a project assignment. Kuhlthau's model of the information search process is presented in Figure 2.4.
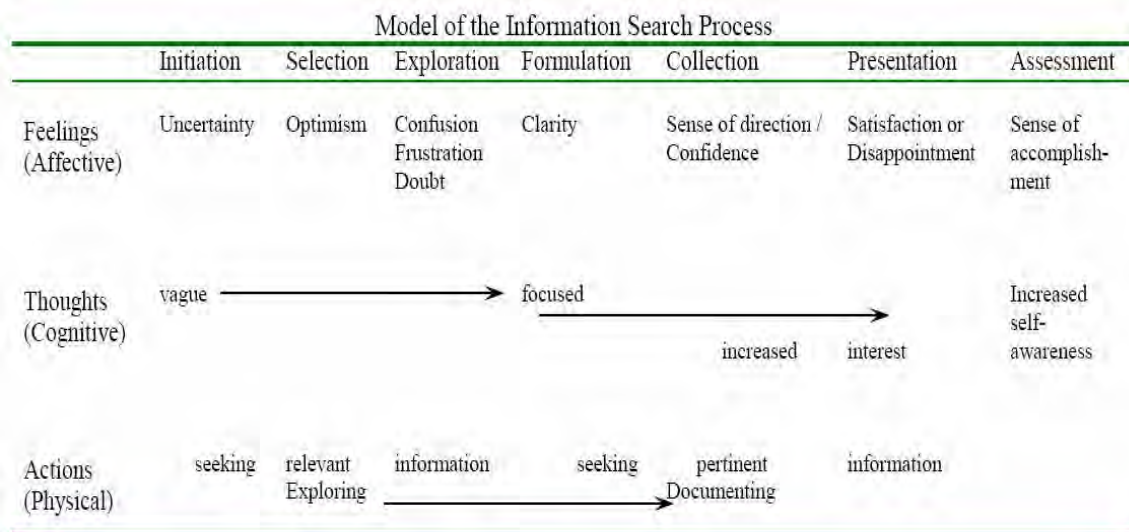
Figure 2.4 Kuhlthau's model of the information search process (Source: Kuhlthau, 1988)

Shah and González-Ibáñez (2010) assert that Kuhlthau's model is one of the most representative models of information seeking that comprehensively describes a user's perspective. Weiler (2005) also describes Kuhlthau's model as valid across the user groups. However, Meyer (2009) after examining Kuhlthau's model showed that there is

still much debate on what factors influence information search behaviour. The model covers cognitive and affective skills of users making it to be specifically desirable for the study of young learners' information behaviour. It helps in solving the confusion usually surrounding the adoption of sequential information seeking behaviour of learners'. For instance, Botha (2014) opined that Kuhlthau's model focused on learning in middle childhood information behaviour. The model therefore excludes educator, is limited to the early educational environment and directed at the initial stage of information seeking that is judgmental, and does not cover professional and occupational information seekers.

2.6 Leckie, Pettigrew and Sylvain's 1996 Information Behaviour Model

Leckie, Pettigrew and Sylvain's (1996) information behaviour model consists of six constructs that include: work roles, tasks, characteristics of information needs, sources, awareness and information search outcome (see Figure 2.5 below).
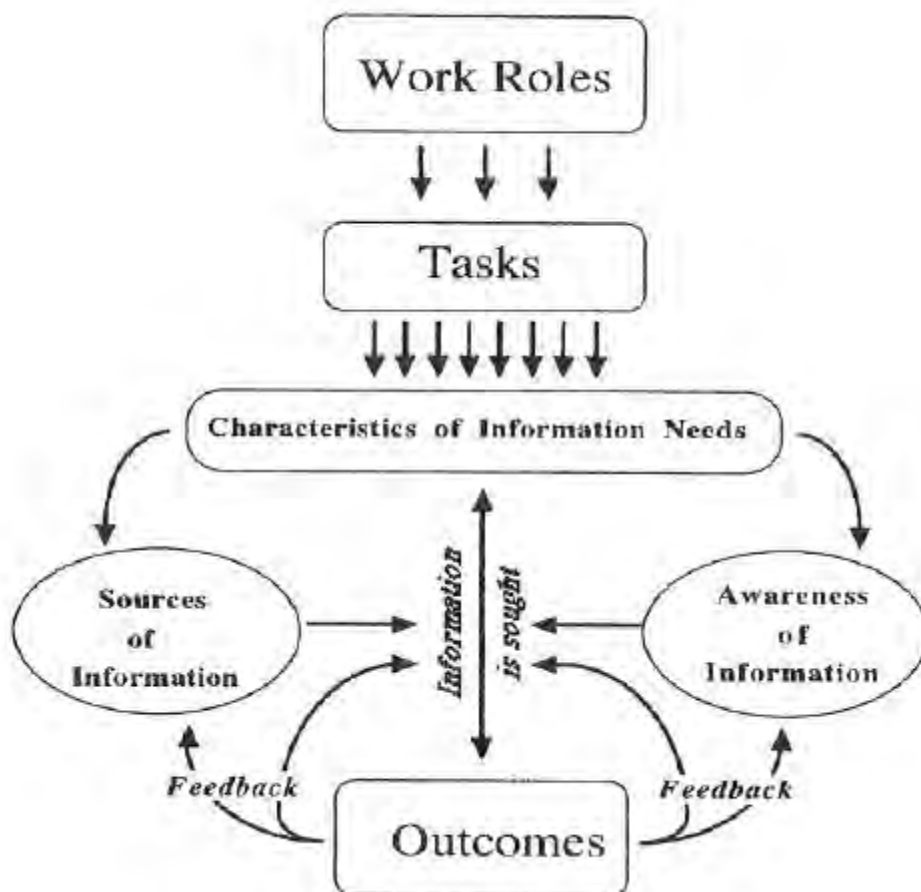
Figure 2.5 Leckie, Pettigrew and Sylvian's Information Behaviour Model (Source: Leckie, Pettigrew and Sylvain, 1996)

This model shows that information seeking is a two-way process involving information sought and its outcome. This model of Leckie *et al.* further shows that definite tasks will activate the kind of information needs depending on the knowledge of the user about information sources. According to Leckie *et al.* the information search outcomes lead to a feedback following the user exploration of information sources and creation of awareness on whether the search efforts are a success or failure. Leckie *et al.* assert that work roles are principally the reason people usually need and seek information in order to meet varying job roles (Leckie *et al.* 1996).

Sahapong, Manmart, Ayuvat and Potisat (2006) conducted a study of roles and competencies of medical information professionals in Thailand using Leckie *et al.'s* model. The study examined the roles and related tasks undertaken by professionals in the course of daily practice. The study outlined information needs of professionals that could stimulate their information seeking behaviour. The study noted that medical information professionals follow the information seeking processes to retrieve and use information according to their roles in the organisation.

Yost, Thompson, Ganann, Aloweni, Newman, McKibbon and Ciliska (2014) found that the Leckie *et al.* considers work roles and tasks as the prime motivators for seeking information by professionals in which work tasks prompt information needs. Lankton, Speier and Wilson (2012) observe that Leckie *et al.'s model* is designed for information seeking of professionals in everyday life and focuses on the demographic profiles of researchers and scholars in the fields of science, law, medicine and engineering.

The model had been adopted in other similar studies. In this regard Foster (2004) opines that the Leckie *et al.* model contributes to the rich tapestry of models, theories and perspectives available. Salajegheh and Hayati (2009: 302) adopted the model of Leckie *et al.* in their studies of medical faculty information needs in the tertiary health institutions in Iran. They found that academic medical staff in Iranian medical schools, in addition to teaching and research, needed information for patient care. Du Preez and Fourie (2010) also adopted Leckie *et al.*'s (1996) model in a study of engineers' information behaviour in South Africa. Du Preez (2008) adopted Leckie *et al's.* model as a theoretical framework for studying the information needs and information-seeking behaviour of consulting engineers.

Kwasitsu (2003) relied on Leckie *et al.* to create a general model of the information seeking behaviour of engineers, health care professionals and lawyers. The study found that engineers relied more on colleagues and internal sources of information than on libraries. More recently, Greyson, Cunningham and Morgan (2011) adopted Leckie et al. because of its flexibility. Umunnakwe, Grand and Umunnakwe (2009) studied information needs and information seeking behaviour of junior nurses in Botswana using Leckie *et al.* which they found useful in providing the background to information awareness and sources of information used. They found however that the Leckie *et al.* model was inadequate in relation to presenting or highlighting what constitutes the attitudinal behaviours of information seekers regarding the affective feelings, cognitive thoughts (perceptions) and physical action process.

The limitation of the Leckie *et al.* model is that it focused on professionals and not on general information users. Case (2012) is also of the view that Leckie *et al.'s* model is limited to work-related processes of a group of professionals. The forgoing notwithstanding, Leckie *et al.'s* concentrated on the information seeking behaviour of professionals which emphasised information needs for task completion and outcome. The model emphasis on information retrieval of professionals, was therefore aimed at suggesting solution the problems of professionals' information behaviour. The model was desirable for the study of healthcare professionals' information behaviour with coverage of it constructs on information needs, seeking, sources, awareness and job outcome (Bitso and Fourie 2012). The Leckie *et al.* model is also found suitable for this study because it has been widely used in related studies to address research problems that are similar to this study. The models was used to help address research questions 1-4 as listed respectively in this study. 1. What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria? Research question 2. How do medical faculty express their information needs in meeting their job-related roles in tertiary health institutions? 3. How does medical faculty in tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care? And research question 4. What are the information sources available to the medical faculty in tertiary health institutions?

2.7 Summary
The purpose of this chapter was to evaluate the suitability of existing information

behaviour theories and models suitable for this study that could guide the investigation of medical faculty in tertiary health institutions in Nigeria. The chapter therefore investigated the information behaviour models of Wilson, (1981), Wilson, (1994), Krikelas (1983), Kuhlthau (1988) and Leckie *et al.* (1996). However, the study adopted the information behaviour models of Wilson (1994) and Leckie, Pettigrew and Sylvain (1996) because they collectively cover information needs and sources, information seeking, information utilisation and sharing/collaboration and jobs/tasks completion. The Wilson (1994) and Leckie, Pettigrew and Sylvain (1996) models complemented each other. For instance, while Leckie *et al.* (1996) covered variables such as awareness and information sources, Wilson's (1994) model provided variables such as information seeking, information sharing and information utilisation.

Table 2.1 below provides the mapping of the research questions with the variables of Leckie et al. (1996) and the Wilson 1994 models adopted for this study.

Table 2.1 Mapping Research Questions to Variables of Information Behaviour Models Underpinning the Study

S/N	Research questions	Model	Variables
1.	What are the information needs of medical faculty in tertiary health Institutions in Kwara State Nigeria?	Leckie *et al.* (1996) and Wilson, T. D. (1994)	Information needs
2.	How does medical faculty express their information needs in meeting their jobs roles in tertiary health institutions?	Leckie *et al.* (1996) and Wilson, T. D. (1994)	Information needs, expression, job roles
3.	How does medical faculty in tertiary health institutions seek, share and utilise medical information for teaching, research and patient care?	Leckie *et al.* (1996)	Information seeking, sharing/collaborating and information use
4.	What are the information sources available to medical faculty in tertiary health institutions?	Leckie *et al.* (1996) and Wilson, T. D. (1994)	Information sources

LITERATURE REVIEW

3.1 Introduction

The literature review in any research is aimed at delineating the research problem and seeking new positions of inquiry (Gall, Borg and Gall, 1996). The literature review also helps to avoid unproductive approaches, achieve methodological insights, find recommendations for further research and look for how to support grounded theory. Marshall and Roseman (2014) assert that literature review serves four broad functions, namely that it:

- Demonstrates the underlying assumptions behind the general research paradigm, displays the research paradigm that underpins the study and describes the assumptions and values the researcher brings to the research enterprise.
- Reveals that the researcher is knowledgeable about allied research and the intellectual traditions that surround and support the study.
- Shows that the researcher has identified some gaps in previous studies and that the proposed study will fill a demonstrated need.
- Refines and redefines the research questions by embedding questions in larger empirical traditions.

The purpose of the study was to investigate the information seeking behaviour of the medical faculty in three tertiary health institutions in the context of Kwara State, Nigeria.

The study sought to address the following research questions:

1). What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria?

2). How do medical faculty expresses their information needs for meeting their job-related roles in tertiary health institutions?

3). How do medical faculty seek, share/collaborate and utilise medical information for teaching, research and patients care?

4). What are the information sources available to medical faculty in tertiary health institutions?

5). What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how are such problems overcome?

The literature reviewed in this chapter is organised around research questions, key variables of the Leckie *et al.* (1996) and Wilson (1994) information behaviour models that underpinned this study. The literature reviewed also covers the broader issues around the research problem. Such broader issues include among others medical information, medical practice and medical faculty job roles.

3.2 Information Needs of Medical Faculty

Norbert and Lwoga (2013) established that several gaps exist in physicians' knowledge that prevented them from addressing various problems in their workplaces. One of those problems was information need towards task completion. Gatero (2010) enumerated several needs for information faculty that included among others information for patient care, information for clinical practice, pharmacological information, information about latest approaches to treatment, information on modalities and current practices in medical and clinical trials, etc.

Buchholz, Budd, Courtney, Neiheisel, Hammersla and Carlson (2013) pointed out the need to equip medical practitioners including medical faculty with knowledge and skills for scholarship for a doctorate of Nursing Practice (DNP). The information need for DNP is for understanding research design and interpretation of specific information needs. They pointed out that medical faculty required not only the knowledge of the information in their domain but how to interpret it to meet their exact need. Bystrom and Jarvelin (1995) argued that a person's information seeking depends on his or her information needs for tasks and the problems encountered. Leckie *et al.* (1996) opine that the broader working context for conducting professional practice must be closely examined and understood for healthcare professional's peculiarities in order to provide them with relevant and adequate information needed.

Baro and Ebhomeya (2013) suggest assessment of the information needs and seeking behaviour of various professionals with regard to their job roles taking into considerations the environment where they operate in order to perform and optimise work performance in referral and tertiary health institutions. Brennan, Edwards, Kelly, Miller, Harrower and Mattick (2014) in the context of information needs of doctors in Devon, UK found that ease

of access to quality information was a main factor that influenced the choice of information resources. Shabi, Kutetyi, Odewale and Shabi (2008) found that the information needs of family physicians in Nigeria focused on new developments in their field such as drug information, government regulations on health care and routine patient care.

Baro and Ebhomeya (2013) in two hospitals in Nigeria found that nurses needed information to enhance patient care, medication administration and better job performance. The study outlined various roles of nurses in the hospitals but failed to differentiate roles of nurses in the teaching hospital and the federal medical centres where they have additional roles.

3.3 Information Behaviour of Healthcare Professionals

Information behaviour consists of various activities that require access to diverse information resources for work-related, personal, and social information problems (Maharana, Dhal and Pati 2013). Bates (2010) described information behaviour as ways through which information interact with a human to perform different tasks. Case (2002) in contrast, perceives information behaviour as a conscious effort at acquiring information in response to the need to fill a knowledge gap through the display of certain characteristics. Bates (2010) describes information behaviour as ways through which information interacts with a human to perform different tasks.

Leckie *et al.* (1996) consider healthcare professionals to include nurses, physicians, and dentists working in the healthcare system. Healthcare professionals work in a wide range of settings that include among others, hospitals, public health units, private practices and universities. Some healthcare professionals may hold adjunct and joint positions, such as doctors who have private practices and also teach at the medical colleges. The focus of this study is on medical faculty, whom Wallis (2006) describes as teachers and mentors of many future health practitioners with the opportunity to shape where and how the health workforce seeks information. Simpson *et al.* (2006) list medical faculty roles to include curriculum development, teaching, leadership, evaluation, and learner assessment.

Bruce, Jones and Dumais (2004) affirm that healthcare professionals in general and medical faculty in particular require appropriate information to perform their job roles and to also provide reliable and valuable healthcare services.

Lorence, Park and Fox (2006) found that information seeking behaviour of healthcare professionals including medical faculty varies depending on their specific job roles, information type sought, purpose for which information is sought, experience of user (i.e. medical practitioners), the environment in which information is being sought, personal traits and dispositions, etc. Conner and Norman (2005) opine that information behaviour of healthcare professionals informs a range of formal and informal actions that must be undertaken to meet personal and official information needs. Shah and González-Ibáñez (2010) assert that in their quest to meet their information needs, users repeat search queries by exploring various sources to collect relevant information. Ikoja-Odongo and Mostert (2006) opine that information seeking is used to resolve the inadequacy that can manifest as a gap, shortage, uncertainty or incoherence towards the effective performance of job roles.

Bawden and Robinson (1997) investigated the information seeking behaviour of nurses working in specialist areas such as midwifery and psychiatric nursing and found that nurses exhibited diverse behaviour in seeking and utilising information. The study revealed that speciality among the healthcare professionals predicts their information behaviour due to the level of job complexity. Dalrymple, Lehmann, Roderer and Streiff (2010) in contrast observed that resident doctors adopted different ways to cope with uncertainty and adapted evidence-based guidelines to solve information needs and challenges that they faced in the performance of their professional tasks. They pointed out that challenges posed by professional tasks in medical care determined doctors' instincts for information needs in order to cope with task uncertainty. Simoyan, Townsend, Tarafder, DeJoseph, Stark and White (2011) pointed out that medical speciality, discipline and environment, self-efficacy and competency influenced the information behaviour of doctors and nurses. Anker, Reinhart and Feeley (2011) for their part, pointed out that the information behaviour of medical faculty depended on specific user needs and tasks at hand. For Kim (2001: 235) factors that affect information search behaviour are experience or mastery of information searches that can be acquired or taught through different information services.

Attfield, Adams and Blandford (2006) reveal that key motivations for medical professionals to seek and use information are driven by their quest to increase patient confidence in the medical faculty practice at the point of medical service delivery. Courtright (2007) observes that for many years of studies in information behaviour, a subfield of LIS, has experienced a shift in focus from the study of people interacting directly with information systems to the

people themselves and how they seek and use information independent of specific sources to accomplish their tasks. Similarly, Hamid (2008) noted that currently in the area of information systems design and evaluation, considerable attention is being given to the users' information behaviour and the user's peculiarity.

Fourie (2012) found that studies on information needs and information behaviour of medical faculty are premised on the hypothesis that healthcare professionals are aware of information needs and gaps in their understanding of information needs and sources. Bynum, Malo, Lee, Guiliano and Vadaparampil (2011) in a study of physicians' information seeking behaviour noted that the challenges facing medical practitioners including medical faculty, is multiple information sources they have to access to effectively perform their work roles.

Ocholla (1999) in a survey of 105 academics at the University of Zululand recommended that colleagues can be relied upon as trusted sources of information rather than consulting multiple sources. This buttressed the fact that generally faculty share similar characteristics with other academics concerning information seeking in the context of job roles.

Olatokun and Ajagbe (2010) in a study of traditional medical practitioners' information seeking behaviour in Nigeria, linked educational attainment and training to information seeking behaviour. The study found that the use of available medical information requires some level of education to assist medical professionals to access, share and utilise information toward patients' care. D'Alessandro, Kreiter and Peterson (2004) stated that during the physician's professional daily routine, many clinically vital patient care questions arise and go unanswered due to the shortcomings in the physician's information need gap. They pointed out that a well-equipped information infrastructure would bridge the gap. Shah and González-Ibáñez (2010) posited that several information tools have recently emerged to help groups of people including healthcare professionals with similar information seeking goals to meet their information needs. They recommended the need for information sharing and collaboration to bridge the information gap of the medical faculty. Roblyer, McDaniel, Webb, Herman and Witty (2010) noted that use of social networks provided by information providers for interacting with healthcare colleagues in academic institutions can be sources of information to meet the information needs of medical faculty. Hu, Sun and Li (2013) from the context of China emphasised the need to equip health professionals including medical faculty with specialised skills in the field of medical library and information science so that

they can deepen their understanding of a variety of practical medical literature to perform their job roles better.

3.4 Information Seeking by Medical Faculty

Steinert (2014) asserts that medical faculty information seeking behaviour evolves around their expected roles towards the promotion of academic excellence and patients care. Alghanim (2011) in a study of information needs and seeking behaviour of healthcare professionals in Saudi Arabia underlined the importance of a robust information infrastructure to support training of such professionals. The study also emphasised the need for a policy framework that would enhance information provision to physicians and other medical faculty. Nnadozie and Nnadozie (2008) submit that faculty information seeking behaviour is paramount to meeting their information needs for improved academic roles. Bethune, Ashgari, Aubrey and McCarthy (2013) in a survey of faculty at Memorial University identified priority research skills as critical for medical faculty to improve patient outcomes through teaching and research.

Akinade (2000) asserted that the medical practitioners in the fields of medicine, dentistry, pharmacy, nursing, biomedical sciences and public health require skills and tools to seek information for performing professional functions. The tools include digital and electronic databases to provide the required information. Alghanim (2011) found that physicians' information needs are usually the reflections of the tasks associated with clinical care for which they seek information. The diversity of information in various formats has compounded the problem of information seeking for medical faculty who must possess different competencies to access the information. This calls for equipping medical faculty with knowledge and skills to identify and use information resources in different formats effectively (Boumarafi 2010). Davies (2008) observed that information seeking among doctors is influenced by time spent in searching for information, use for which the information is to be put and competencies for information searching. With their own competencies they do not need to rely on intermediaries. This is corroborated by Wallis (2006) who reported in the context of Massachusetts School of Public Health that medical faculty regularly sought information in support of their research, teaching and service without assistance from information providers. Such medical faculty had over time developed independent information seeking behaviour.

Kritz, Gschwandtner, Stefanov, Hanbury and Samwald (2013) investigated barriers that prevented faculty from seeking successful medical information from the internet. The study suggested popularisation of user-tailored medical information search tools in developing countries to ease internet information seeking. Haddad and MacLeod (1999) on their part stated that medical faculty in developed countries were overwhelmed by the volume of available information and needed to be equipped with skills to enable with plethora of electronic information.

3.5 Information Utilisation by Medical Faculty

The use to which medical faculty put information changes from time to time depending on the task to be performed. Davies (2008) observes that most information utilised by medical faculty for their job roles is often not stored for future use which requires them to search over and over again when the need for such information is required.

The driving force behind information need is for their job roles. Medical faculty as already pointed out perform teaching, research, community engagement and patient care roles and as a result they require a wide range of information. The increasing diversity of information formats gives the medical faculty more options from which to choose depending on their competencies and individual efficacy. The choice of what kind and formats of information sources by medical faculty such as a library, colleagues, personal collection and the internet is also influenced by intuition based on their information utilisation behaviour. Vakkari (1999) examined utilisation of information for task completion by medical faculty and found that information use by medical faculty goes beyond task completion and includes measuring the outcome of the task. Kosteniuk, Morgan, and D'arcy (2013) concluded that making specific clinical decisions was one of the reasons for clinicians' use of information from sources considered reliable and accessible. For this reason they found that medical faculty depended more on the personal collection and consultation with a colleague to support their clinical decisions because these sources of information were convenient, readily available and trusted. Functional and intellectual accessibility are other factors that influence the use of information by medical faculty (Verhoeven, Boerma and Jong 1995). Medical faculty also tend to be inclined towards information with a high intellectual rating so as not to be exposed to academic bias. Moreover, individual medical faculty competency, rank and experience influence the use of information in their job roles. Feather (2006) opined that information searching skills determine the judgement about the quality and value of information to

support user's decision. Hurwitz and Slawson (2010) emphasise the need for clinicians to learn the techniques and skills of finding, evaluating and utilising information at the point of patient care and for training purposes. Garand, Matthews, Courtney, Davies, Lingler, Schlenk and Burke (2010) holds the view that the diversity of roles of medical faculty influence the use of information they seek and find. Steinert (2014) similarly noted that medical faculty perform a broad range of activities that influence the kind of information they seek and use in their job roles. Howell (2010) submitted that academic medical faculty juggle various tasks to complete their jobs. They similarly juggle between information depending on the information needed and for what use. Moreover, complexity of medical education and practice to prepare them for professional leadership roles and responsibilities affect the way they seek and use information in their job roles. The use to which they put the information at their disposal is dependent on whether the information accessed is formal or informal. The formal knowledge is acquired through workshops and seminars, short courses, fellowships and other longitudinal programmes. Cornwall (2011) opined that the way information is presented determines the effectiveness of its use. For example, a pictorial quiz tool has been found to improve information utilisation by the medical faculty. Bennett *et al.* (2004) opine that when doctors explore information from the internet they assess the information for credibility and ease of use since teaching and learning are purposeful and goal-directed.

Shabi, Shabi, Akewukereke, and Udofia (2011) examined the motivational factors for utilisation of internet and health information sources among resident doctors in tertiary healthcare institutions in Nigeria. The study found that despite the availability of health information sources on the internet, they were still underutilised. Underutilisation of the internet by resident doctors in Nigeria tertiary healthcare institutions seems to be linked to issues of trust and access. With regard to trust, they seem to have the belief that information obtained from the internet may not be authoritative. As far as access is concerned there is a general feeling that infrastructure obstacles hinder effective access and use of the internet. In contrast, medical faculty seem to be comfortable using medical databases which they believe contain trustworthy information for clinical practice and research (Shabi *et al.* 2011). Ajuwon (2006) in contrast found use of the internet in medicine for research, training and patient care as common practice while the use of medical databases was minimal.

Adeleke, Lawal, Adio and Adebisi (2014) examined the utilisation of information and the training needs of Nigerian health information management professionals. The study revealed

the dominance of paper-based information management systems. Boruff and Storie (2014) investigated the extent to which members of Canadian medical faculty utilised mobile devices like smartphones to find and answer clinical questions. The study revealed that medical faculty utilised mobile devices for a broader range of activities. This usage behaviour was attributed to the fact that mobile devices were configured to access medical library collections.

3.6 Information Sources Preferred by Medical Faculty

There are many information sources available to information users within the information system and outside the system that gives users the preference of choice. Ogunronbi (2001) refers to information sources as instruments that bear information like books and non-book materials such as computers and other electronic information sources. Information sources come in an array of formats that give users the choice and liberty to choose those that are suitable for their purpose, space and convenience. Stroetmann and Aisenbrey (2012) examined the products of Siemens and affirmed that information sources contribute to sharing of experiences among medical faculty within and without the environment where they normally worked. Siamian, Yaminfirooz, Dehghan and Shahrabi (2013) revealed that among the various medical information sources used by medical faculty are books, journals and internet among others. They found that printed books were the most preferred information sources by medical faculty. Leckie, Pettigrew and Sylvain (1996) noted in the context of the hospital that the nurse's role of patient care required them to have access to a diversity of information to meet their job roles.

Rains and Ruppel (2013) explained why types of information sources were used or not used by medical faculty. They found that medical faculty and medical interns used or did not use certain sources of information because of their lack of knowledge of those sources. Salinas (2014) reported that peer review journal articles were the most useful information sources for physicians. Peer review journals were acclaimed to be one of the outlets through which academics contributed to knowledge. McKnight and Peet (2000) in self-reported observational studies and analysis of reviews of published information sources of doctors, nurses and other healthcare providers since 1990, found that online bibliographic and full-text information sources were increasingly being used despite the fact that healthcare professionals' information behaviour remained static.

Osiobe (1986) found differences in the use of information sources by medical faculty in ten selected specialities in six Nigerian universities, which showed that some degree of variation between the specialities existed. As already pointed out, the use of various information sources is dependent on many factors that include among others types of practices, speciality, and location of practice, professional age, the size of their hospitals and job roles. In this regard Hansen and Wood (2011) noted that the designing and delivering evidence-based medical practice requires careful consideration of varied medical information sources. Murray (1992) noted that the use of the library information resources increases with recency of training and consultation with colleagues but decreased as doctors grow older in medical practice. For example, dentists were found to rely on the physician's desk reference as their major information source for meeting their job roles. They further found that experience of medical faculty influenced the choice of information sources for performing job and sundry roles. Cheryl and Stanley (2005) found that clinical nurses preferred human resources such as professional superiors, clinical supervisors, nurse colleagues, physicians, or other medical care providers when looking for information.

Covell, Uman and Manning (1985) identified information sources in healthcare and reasons for their non-use. They found that age of textbooks, poor organisation of journals, inadequate indexing of books and drug information sources in the medical library negatively affected usage by medical faculty. They also found that lack of knowledge of an appropriate source and the time required to find the desired information were reasons for non-use of a variety of medical information sources. This finding behoves the fact that medical information providers when planning collection development need to consider factors such as currency of the publication, organisation of the publication, knowledge of the users about information sources available. Gruppen (1990) showed that there is a growing interest in building the information resources of health sciences taking account of their easy accessibility varied formats to meet the diverse needs of medical faculty.

Haug (1997) reported that physicians preferred to obtain information from journals and books, but also consulted colleagues to obtain answers to clinical and research questions, depending on where and with whom the professional medical worked together. The study revealed that the environment also influenced the choice of information sources by medical faculty. Wyatt (1991) reported in a survey of United States health professionals that information sources most commonly used by physicians were printed materials, discussion

with colleagues, information shared at meetings, unsolicited publications and consultation within the medical school. Findings from related studies indicated that both conventional and non-conventional information sources were significant channels through which medical faculty meet information needs for their job roles. Osheroff, Forsythe, Buchanan, Bankowitz, Blumenfeld and Miller (1991) agreed that frequently requested user information are patient information and medical knowledge. Rains and Ruppel (2013) examined the process through which users select and use multiple information sources when acquiring health information. The study found that information seekers in healthcare consulted multiple information sources. These information sources include healthcare information providers, colleagues, print media and online support groups when dealing with variety of job related cases.

Fourie and Bakker (2009) noted that medical faculty ability to recognise various sources of information and their importance to their job roles depended on the individual's ability to manipulate different information sources including e-Journals (Singh and Gill, 2012).

Numerous studies have shown that most medical professionals perceived their personal collections to be the most accessible information sources and will use those collections even if the information is rather limited (Quadri and Gbadamosi, 2001; Igbeka and Atinmo, 2001; Gbadamosi, 2004; Bello and Musa, 2003). Similarly, Woolf and Benson (1989) revealed that medical professionals preferred to seek information from private or office information sources of known books and journals before going elsewhere to look for information. They found that accessibility to information sources by medical professionals was influenced by physical proximity such as the location of the library and by other considerations, such as the language used to convey the information (Ogunronbi, 2001). Ogunronbi noted that physicians appeared to choose sources of information that were most easily and efficiently accessed and most applicable to clinical problems. Talja, Vakkari, Fry and Wouters (2007) observed that e-journal information sources were more readily used especially material that have been indexed, catalogued, and classified.

Kapiriri and Bondy (2005) indicated that the most frequently mentioned information sources by health practitioners and health planners for decision making in Uganda included discussion with colleagues (89%), doctors' statements (85%) and textbooks (77%). The study further found that frequently cited healthcare professionals' information sources were the Internet, MEDLINE, the library and researcher's reports. Subramanian and Jayaraman (2013)

identified information source preference among medical faculty at Karpagam University to include textbooks as the most preferred source for teaching and research purposes.

Folb, Wessel and Czechowski (2011) found that clinical researchers were the heaviest users of the health sciences library and preferred either electronic or print books that are available at the time of needs. Jones, Hanney and Buxton (2007) submit that variation in the information sources preference by medical professionals are vital to clinical decisions. They found that professional meetings and conferences, peer-reviewed journals and medical colleagues were the most consulted sources. They concluded that no one information source was dominant in medical faculty choice of information sources. An exploratory study by Marshall, West and Aitken (2013) on the use of information by nurses for making clinical decisions in an uncertain situation. They found that nurses preferred colleagues as a source of information when faced with uncertain situations about their clinical practice.

Marshall, Morgan, Klem, Thompson and Wells (2014) reported that the library was the primary preferred information source in a survey of 6, 788 nurses in 118 hospitals at the University of North Carolina, USA. In a global web survey, Argüello Magaz (2013) provided an assessment of the characteristics of medical information sources preferred by healthcare professional from 93 countries. Findings of the study showed that the leading preferred information sources among healthcare professionals were the internet and scientific journals. The result confirmed the growing adoption of internet as an authentic information source for medical faculty. Clarke, Belden, Koopman, Steege, Moore, Canfield and Kim (2013) found evidence that physicians and nurses needed internet access to perform their job roles

Abbas, Abubakar, Omeiza and Minoza, (2013) reported that among resident doctors in the teaching hospital surveyed in Nigeria, printed material remained the preferred source of medical information. The study further reported the preference of the majority of resident doctors for print-based sources such as books and journals when seeking medical information.

Ajegbomogun and Ajegbomogun (2013) in survey of information seeking behaviour of doctors at the Federal Medical Centre (FMC), Abeokuta, Nigeria revealed that doctors preferred to access information sources through the internet. Previous studies (Ajayi, 2013; Adio, Akewukereke and Ibitoye, 2007; Abbass, *et al.* 2013) found that medical faculty and

other healthcare professionals have a preference for the internet and electronic resources. The studies indicated that healthcare professionals in Nigeria in addition to traditional information sources still preferred internet information sources in their academic and clinical duties. Marshall, West, and Aitken (2011) explored the preferred sources of information among intensive care nurses using concurrent verbal protocols. The study found that medical colleagues were the preferred sources of information for supporting clinical decisions in an Australian tertiary teaching hospital. Oduwole (1999) noted that medical professionals relied mostly on their institution's library and personal data collections for information.

Most of the studies reviewed indicated that the preference for information sources by medical faculty was consultation with colleagues, medical libraries and medical faculty collections. Andualem, Kebede and Kumie (2013) reported that information sources availability causes medical faculty to prefer hard copies of information sources and asking senior colleagues for information to meet their information needs.

3.7 Information Sharing and Collaborations among Medical Faculty

Paul and Reddy (2010) described information collaboration as making sense of information sought and found while examining collaborative information seeking practices of healthcare providers. They pointed out that veracity of information usefulness is through sharing with other people with the same interest. Razavi and Iversion (2006) identified emerging themes in information sharing that included trust between the owner and the receiver of information, the dynamics of the group or community within which the information being shared.

Talja (2002:3) described collaborative information behaviour as a new development in information studies compared to nursing science, history, literature, cultural studies, ecological and environmental science. The study developed a conceptual framework for the description of types and levels of information sharing about document retrieval in academic communities. Bitso and Fourie (2012) suggested the active participation and a collaborative approach by an information specialist in implementation of an information service delivery. The study showed that an inclusive approach, and organisational support would not only enhance the information content of shared sources but enable sharing of information for different tasks among academics.

Ellis (1989) pointed to the creation awareness about the value of sharing of information among academics and social science researchers. Mayfield and Thomas (2005) report that

communication is a key to the successful information sharing among medical faculty. Niedzwiedzka (2003) described organisational perspective as the most important determinants of information behaviour that is connected with the type of organisation or system to be shared and collaborated. Hesse, Nelson, Kreps, Croyle, Arora, Rimer and Viswanath (2005) revealed that information sharing and collaboration reduces the efforts to search and utilise information by the medical faculty. To make collaboration work among healthcare professionals, Schadewaldt, McInnes, Hiller and Gardner (2013) suggested that health care professionals must be confident in the competence of the collaborative partnership and understanding collaborator information needs.

Peluso, Hafler, Sipsma and Cherlin (2014) described interprofessional collaborative approaches to Global Health (GH) education as important for meaningful partnerships to refine interprofessional global health education programmes. Sargeant and Harrison (2004) discussed the use of health information by academics, and professionals concluded that collaboration is critical to meeting healthcare professonal job roles. Doukas, Pliakas and Maglogiannis (2010) noted that information sharing and collaboration among medical faculty is a key factor towards the successful adoption of mobile healthcare systems. Information sharing and collaboration with mobile healthcare allows information providers to create and structure a body of scientific and technological systems related to the transfer of information from professionals to their clients remotely.

In summary, information sharing and collaboration is vital in meeting information needs of professionals including medical faculty. Moreover, skills in information searching is key to the maximisation of medical information sources by the medical faculty (Doukas, Pliakas and Maglogiannis, 2010; Sargeant and Harrison, 2004; Sicat, Kreutzer, Gary et al., 2014). It is therefore important for medical faculty and other healthcare professionals within and outside the tertiary health institutions to form a synergy to improve their job roles.

3.8 Roles of Medical Librarian

The medical librarian is referred to in the medical literature as specialists who accompany physicians in patient services and return to the library to search for pertinent care-related articles (Cimpl, 1985). Cimpl (1985) indicated that a medical librarian has features and roles that are similar to a clinical librarian. Clinical librarians as information professionals support healthcare professionals at the point of service delivery. Harrison and Beraquet (2009)

revealed the key activities of the medical librarian to include the requirement to identify the key information needs of the clinicians for their various roles. Understanding user' information needs and medical information provision is a prerequisite for successful medical education and services delivery.

Tan and Maggio (2013) listed the roles of the clinical librarian as supporting patient care teams in clinical settings, and saving clinicians' time. Clinical librarians support decision making and improving overall patient care. Clinical librarian service is an evidence-based service that not only assists information seekers but also information providers on how best to serve clients and encourage them to share information in the areas of interest. A synergy between the medical faculty and clinical librarian in a clinical setting will therefore enhance teaching, research and patient care (Harrison and Sargent, 2004). Harrison and Beraquet (2009) and Davies (2011) perceive librarians and information professionals' roles to include providing clinical information in the tertiary health institutions. In the same vein, Gardois, Colombi, Grillo and Villanacci (2011) found that librarians are particularly useful in helping doctors to efficiently turn scenarios into clinical questions that will assist them in arriving at a clinical solution for patient needs. Other roles of medical faculty include supporting the faculty with provision of information for ongoing research projects that related to health and patient care (Weightman and Williamson 2005).

Tahir, Mahmood and Shafique (2008) acknowledged that understanding the information needs and information-seeking behaviour of users in developing library collections in tertiary health institutions is the task of medical librarian. Reeves, Perrier, Goldman, Freeth and Zwarenstein. (2013) assert that delivery of effective patient care is complex and demands health care professionals to access requisite information at the right time and right format. Wilson (2000) pointed out that medical librarian will serve the medical faculty well if they understand the information behaviour of such users. In this way Davies (2009) concluded that medical librarians can collect data and identify the information needs of doctors well ahead of need. Harrison and Beraquet, (2009); Tan and Maggio, (2013) observe that the role of the medical librarian is to support medical faculty at the point of service delivery.

3.9 Challenges of Medical Education Information Provision

The literature reviewed suggests that there are many challenges militating against the successful implementation of medical services and patient care especially with regard to the

provision of information services. Medical librarians must therefore develop ways of addressing the challenges faced in the provision of information services to medical faculty to support teaching research and clinical decisions.

Manyama, Mahana, Kabangira and Konje (2013 in a study conducted in Tanzania medical schools revealed critical shortage of medical faculty including medical librarian and expressed concern that this was compromising the quality of medical education. They also decried the dearth of information support personnel in the medical and healthcare education institutions. They pointed out that as a result of these challenges, provision of healthcare services were being hampered. Obaka (1991) identified problems of medical information in Africa to generally include lack of qualified staff in most medical libraries across the continent. Obaka recommended cooperation among African medical libraries and also provision of specialised training for medical librarian outside their countries. Salunkhe and Pange (2013) noted that medical library services were undermined by poor salary, non-job satisfaction, the absence of continuing professional education, poor organisation of medical librarian association, lackadaisical attitude of librarians towards medical librarianship and more. These challenges invariably affected the services that medical libraries offer in their quest to address the medical faculty information needs.

Medical faculty including librarians are facing the information explosion. Coping with the medical information explosion by the medical librarian has become a heavy burden in the libraries in the tertiary health institutions. The rate at which medical information is being generated in order to deal with epidemics, endemic infectious diseases and management of patients is phenomenal. Therefore the importance of redesigning and repackaging information in different formats to meet varied information needs of medical cannot be over emphasised. Beath, Becerra-Fernandez, Ross and Short (2012) found that the growth of medical information far exceeded the yearly increase in the level of information storage available by 150%. The study further reported the highest volume of data was kept recorded at research universities for further information provision.

The information retrieval systems in the medical library can hardly cope with the local and external information explosion. Berner and Moss (2005) explain challenges of this information explosion in the context of information filtering, decision support, legal and ethical implications as well as information acquisition, access, use and reliability. Daniel and

Oyetunde (2013) submit that to manage the explosion of medical information in Nigeria requires the advancement of nursing informatics, commitment to continuing professional education and development; involvement of   nursing professionals healthcare policies formulation and training in information literacy skills.

Iqbal, Mahmood and Arif (2012) submit that medical researchers are faced with two major problems during information seeking that include scattered information and expansive nature of medical information sources. These challenges result in medical faculty spending more time in identifying their required information to meet the need of job roles. Sackett, Straus, Richardson, Rosenberg and Hayne (2000) observed that research in clinical epidemiology shows that evidence being generated by medical researchers around the world are not getting to the professionals and patients in a timely and straightforward way.

Ojo and Akande (2005) revealed that the lack of information retrieval skills is the major reason for reliance on printed information resources by medical faculty in Nigeria. They recommended that medical faculty and other healthcare professional should be equipped with modern information retrieval skills. Dafiaghor (2012) submits that Nigerian academic libraries still relied on print information sources though there was increasing use of e-resources to fill the gap (Bozimo, 2010). Medical faculty reliance on printed information resources was also as a result of their conservative belief in using printed information and lack of confidence in electronic information. Baro, Endouware andUbogu (2011) revealed that electronic resources such as Medline, Hinari, the Cochrane Library and EbscoHost were rarely used in the Nigerian universities.

Younger (2010) noted that lack of awareness about online information makes the use of such resources limited. This was exacerbated by the fact that medical faculty and librarians found it convenient to record patients medical cases manually rather using modern tools like the computers and portable electronic devices.

McGowan, Wasko, Vartabedian, Miller, Freiherr and Abdolrasulnia (2012) opine that medical knowledge needs to expand with media technologies that provide for efficient and effective education to inform physicians, practice. Swartz, Cowan and Batista (2004) claimed that using the internet to improve health outcome is a reasonable but still-unrealised goals as a result of some obstacles including issues of access. Wakeman (2009) noted that in the UK medical schools health librarians were responding to the new challenges of coping with new

information sources by employing information technology. In developing countries such as Nigeria, there is a need to create awareness and use of the electronic media among medical faculty, provide training for using internet and other electronic sources of medical information.

Cheston, Flickinger and Chisolm (2013) submitted that medical educators have challenges of adapting new to technologies, but they also have opportunities for innovation to use ICT for information capturing, preservation, storage and presentation.

Grefsheim, Rankin, Perry and McKibbon (2008) reveal that the American Medical Library Association (MLA), in a new research policy, revealed the problems faced by MLA members in building supportive research culture and encouraged teamwork to promote information sharing and collaboration. The report also emphasised that attendance at international meetings will afford medical faculty and medical librarians to promote collaborative research across the discipline of medicine and librarianship

Komolafe-Opadeji (2009) investigated the use of ICT skills by librarians and support staff in Latunde Odeku Medical Library at University College Hospital, Ibadan Nigeria. The study showed that lack of exposure to training by the library staff had affected faculty skill acquisition that would improve medical information behaviour. Iqbal, Mahmood and Arif, (2012) found that researchers felt the need of formal computer training for doing their research work. Computer training can enable faculty to use a computer to perform many functions including electronic information access for faculty job roles.

O'Leary and Mhaolrúnaigh (2012), in a study undertaken in Ireland between 2006 and 2007, recommended repackaging information for nurses to cope with the diversity of information sources. They also recommended continuing education to promote research and scholarship. Baro, Endouware and Ubogu (2011) described the need for incorporation of medical information literacy skills into the medical education and training curriculum to help develop capacity among medical faculty to find and use information.

Crow *et al.* (2012) observed that medical institutions in sub-Saharan Africa lack the necessary funds to allow healthcare professionals have access to relevant and up-to-date medical information for patient care. The lack of funding affected research and publications, aggravated by the high cost of institutional subscriptions to medical journals and other library

books. Watts and Ibegbulam (2006) submit that lack of funding remains a problem for academic libraries in Nigeria. The study showed that medical libraries relied on donor assistance because government subvention is not regular and when it comes it is meagre and can hardly meet the academic library needs.

The state of tertiary educational institutions in Nigeria especially libraries is generally poor due to infrastructure decay and misplacement of priorities. Omopupa and Abdulraheem (2013) observe that the best universities should be those with physical library structures and facilities but this is not the case in Nigeria.

3.10 Summary of Literature Review

This chapter covered medical faculty information behaviour including information seeking, information needs, information utilisation, information sources, information sharing and collaboration among medical faculty in health tertiary institutions in Kwara State Nigeria. Most of the literature found and reviewed were in the context of developed countries. The current study brought into the fore the context of a developing country by focusing on selected tertiary health institutions in Kwara State Nigeria. Additionally, the reviewed literature showed that existing research on medical faculty has employed largely the use of either qualitative or quantitative methods singly rather than mixed approach that is suited for investigating information behaviour research problems.

The literature reviewed illuminated limitations of the existing information behaviour models which do not cover to a large extent use of colleagues as sources of information. Consequently, this study has added senior faculty as sources of information for junior in medical field. The literature reviewed also revealed weak policy implementation because of lack of capacity especially with regard to human skills. Therefore, continuing professional development, workshops, seminars and academic community of practice have been recommended as part of capacity building of medical faculty in the quest to meet their information needs.

The literature revealed a clear lack of an awareness programmes and lack of clear policy framework to enable medical librarians understand the diversity of information sources available to medical librarians on one hand and medical faculty on the other hand for them to make effective use of diversity of information sources in meeting their information needs. This study therefore brings to the fore policy framework required to create awareness about

diversity of medical information sources in both print and electronic formats to meet the information needs of medical faculty.

The literature reviewed in general seemed inclined applying single model of information behaviour especially the Wilson model of information behaviour in addressing related research problems. The current study's point of departure is therefore that it triangulated two models of information behaviour namely, the Wilson (1994) and Leckie et al. (1996) models of information behaviour to investigate the information behaviour of medical faculty in tertiary health institutions in Kwara State Nigeria. The combination of two information behaviour models provided a deep understanding of information behaviour of the medical faculty in Nigeria. Similarly, the study departed from studies in extant literature where there is hardly any application of research paradigms in investigating research problems. This study used post-positivism paradigm philosophy that allowed the triangulation of qualitative and quantitative methods to gain a deeper understanding of the different perspectives of the research problem being investigated.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

The purpose of the study was to investigate the information behaviour of the medical faculty in three tertiary health institutions in Kwara State, Nigeria. The following research questions were addressed:

1) What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria?

2) How do medical faculty express their information needs for meeting their job-related roles in tertiary health institutions?

3) How do medical faculty in tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care?

4) What are the information sources available to medical faculty in tertiary health institutions?

5) What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how are such problems overcome?

This chapter is organised around the following themes: research paradigm, research approaches, research design, and the population of study, sampling procedure, data collection methods, data analysis, reliability and validity and ethical considerations.

4.2 Research Paradigm

A researchh paradigm is the totality of the philosophical framework through which knowledge is produced to improve how things are done (Creswell 2012; Braa and Vidgen 1999). Application of the paradigm varies from one researcher to another on the basis of the investigator's choice and the nature of the topic under investigation. Guba and Lincoln (1994) opine that differences in the application of paradigms are not only philosophical, but so are the consequences for the practical conduct of inquiry as well as the interpretation of research findings.

The main and most commonly used research paradigms include positivism, postpositivism, and the interpretive paradigm. Inquiries into the nature of knowledge investigated usually

require the adoption of one of the research paradigms to enhance its credibility and generalisability. Easterby-Smith, Thorpe and Jackson (2012) pointed out that a research paradigm can help the researcher to refine and specify the research methods in a study, that is, to clarify the overall research strategy to be used. Furthermore, knowledge of the research paradigm enables and assists the researcher to evaluate different methodologies and methods. It also helps to avoid the inappropriate use of research approach and unnecessary work by identifying the limitations of particular approaches at an early stage to prevent waste of energy, resources and time. In addition, a research paradigm also helps the researcher to be creative and innovative in either selection or adaptation of methods that were previously outside his or her experience (Creswell 2013).

The positivist paradigm posits that there is reality of relationship between the knower and known that assists researcher to discern the reality involved in the research process (Tashakkori and Teddlie, 1998). By using the positivist paradigm the researcher stands to make discoveries as an observer and reports on the reality through his observation that must be objective and devoid of bias. According to Philips and Burbules (2000) positivism deals with real observations, objectives and measurable phenomenon. Pickard (2007:8) underscores the weakness of the positivist paradigm arguing that in investigating social phenomena, unlike a natural object, positivism tends to be less robust. In addition, postpositivism has been criticised because it does make a distinction between the observer and the phenomenon that is being observed (Corbetta, 2003; Greenfield, Greene and Johanson, 2007). Nevertheless, Corbetta (2003) acknowledges that the positivist approach has continually been revised and adjusted throughout the 20th century to overcome its intrinsic limits to make it desirable for the investigation of social phenomenon.

Mohamed-Arraid (2011) asserts that postpositivism shows that the enquirer can hardly be separated from the sequence of events being observed objectively in the course of research into a particular human phenomenon. Postpositivism starts by applying research process theory to make a claim. The postpositivist believes in using both quantitative and qualitative approaches for deducing facts from phenomenon observed. Tashakkori and Teddlie (1998) asserts that postpositivism is a developed version of positivism. It emerged as a response to the failure of positivism to change as a result of the emerging shift in the principles of natural science that dictated that the relationship between the observed and observer cannot be separated.

Postpositivists query the positivist approaches to knowing through the application of objective, scientific, empirical methods as being not only limited but inappropriate and not capable of generating authentic evidence of a world that we are constantly constructing through our actions and interactions inherent in human behaviour (Philips and Burbules, 2000). Postpositivism believes the plain foundation of logical positivism as no longer tenable in modern science (Letourneau and Allen 1999). Postpositivists, therefore, need to identify and assess the causes that influence outcomes as found in the experiments with the intent to reduce the ideas into a small discrete set of ideas to test variables that comprise research questions (Creswell, 2009:7).

The criticism about postpositivism has been responsible for the birth of other paradigms including interpretivism (Bryman, 2008). The interpretive paradigm aims at understanding the social problem by developing a holistic impression from the narration and analysis of information gathered in research. The interpretive paradigm specifically contrasts the epistemological position of positivism. The interpretive paradigm represents the views of those who are critical of the application of the scientific model to the study of the social world that is influenced by different intellectual traditions (Bryman, 2008).

From the interpretive perspective, the concern of the researcher or investigator is with knowing and exploring specific subjective realities that exist in using inductive and empiricist approaches. It is concerned with human experience and evidence that begins with observations where conclusions are drawn from researcher experiences and thinking in the social or human interaction (McKenna, Richardson and Manroop, 2011). The interpretive paradigm requires that the methods used to conduct investigations must be essentially different from those employed by positivists. The interpretive paradigm (philosophical approach) is also concerned with disclosing interpretations and meanings of actions that are believed to be subjective (or inter-subjective) in meaning. The interpretive paradigm concentrates more on the construction of sense of the real context of human beings and not on the measurement of that phenomenon (Collis and Hussey, 2009). The interpretive paradigm is more suitable in research with a qualitative approach where the researcher will apply deductive or inductive reasoning for the construction of meaning (Creswell 2013; Sarantakos 2012).

This study adopted the postpositivist paradigm that allows the combination of quantitative and qualitative approaches to gather contextual data to enhance understanding of human

behaviour. The research questions one to five of this study outlined at the beginning of this chapter were suited to both quantitative and qualitative approaches and the use of diverse research instruments to collect data.

4.3 Research Approach

Pickard (2007) noted that qualitative and quantitative research approaches can be employed in descriptive studies to discover the existing state or the characteristics of participants in a phenomenon being studied. The mixed methods approach which comprises of quantitative and qualitative research approaches was also adopted for this study. In mixed methods research the researcher collects, analyses, and integrates both quantitative and qualitative data in a single study or a multiphase program of inquiry (Creswell, 2012). The qualitative research approach in a mixed method is used in describing the phenomenon, nature and boundaries of a phenomenon (Bothma, Greeff, Mulaudzi, and Wright, 2010). The approach allows contextual data collection and analysis using interview, observation, focus group discussion and document analysis. Brink *et al.* (2012) posit that the qualitative research approach conveys the qualitative aspects of meaning, experience and understanding of human experience from the viewpoints of participants.

Furthermore, the quantitative research approach in a mixed method also focuses on a systematic empirical investigation of observable phenomena via statistical, mathematical or computational techniques thereafter interpreted to reach a conclusion. Creswell (2012) points out that the quantitative research approach is used in scientific investigation to examine the relationships between and among variables that are central to research questions and hypothesis through survey and experiments. This approach employs statistical analyses to obtain findings with formal and systematic measurement (Marczyk, DeMatteo, and Festinger, 2005).

Related studies that have used mixed methods include among others (Abbas, Abubakar, Omeiza, and Minoza, 2013; Saunders, Lewis and Thornhill, 2012; Al-Dousari, 2009).

4.4 Research Design

Research design is the overall strategy chosen to integrate different components of a study in a coherent and logical way to ensure that the research questions effectively address the research problems (Marczyk *et al.*, 2005). The research design is also a blueprint for data collection, measurement, and data analysis in research. According to Bechhofer and Paterson

(2012) research design varies depending on the place(s) where research was conducted, the methods used to gather data and the analytic techniques used. Research designs can be descriptive, exploratory, experimental, phenomenography or ethnographic.

Stebbins (2001) observes that exploratory research is suited for investigating phenomena or situations that are not familiar. Exploratory research design is also ideal in a situation when the researcher sets out the question for investigation, and there is insufficient information to provide an idea of the sorts of answers. Neuman (2006) points that the primary purpose of exploratory research is to examine less understood issues or phenomenon to develop preliminary ideas and move toward refining the research questions by focusing on the 'What' question.

The experimental research design on the other hand involves the manipulation of independent variables in the presence of a control group (Patidar, 2015). Creswell (2008) observes that experimental research seeks to determine if a specific treatment influences an outcome. The outcome is thereby assessed by providing a specific treatment to one group and withholding it from another. It investigates how both groups perform on an outcome through the determination and comparism of the findings by the researcher. Keppel (1991) pointed out that experimental research design includes actual experiments that randomly assigns subjects to the treatment of conditions within quasi-experiments.

Another research design is the ethnographic one that is basically a strategy of investigation that allows the researcher to examine participants in a cultural group and in a natural setting over a period. The ethnographic researcher can gather data from primary sources, observe and interview participants (Creswell, 2012). Schensul, Schensul and LeCompte (1999) described ethnographic design as a flexible research process that typically evolves contextually in response to the reality of life.

The descriptive survey design according to Calmorin and Calmorin (2007: 70) is a research design that allows the researcher to generalise the results of findings and show relevant characteristics of the population that has been measured. Powell (1997) indicated that the most straight forward type of survey research is descriptive. Descriptive survey research techniques save time and money without compromising efficiency, accuracy and information adequacy in the research process (Busha and Harter, 1980).

This study therefore adopted the descriptive research design to enhance better understanding of the characteristics, traits and information behaviour of medical faculty. Related studies on information seeking behaviour of health professionals that have used descriptive survey design include (Dee and Blazek 1993; Komolafe-Opadeji, 2011; Bitso 2011; Andrews, Pearce, Ireson, and Love, 2005; Cook, Heath and Thompson, 2001; Kyrillidou, Hiller, Kyrillidou and Self, 2008; Zaborowski, 2008). Dee and Blazek (1993) investigated the information seeking behaviour of a physician in central Florida using a descriptive survey. Komolafe-Opadeji (2011) used descriptive survey design to study collection development and constraints affecting the acquisition process in the medical faculty of University College Hospital, Ibadan. Similarly a descriptive survey was adopted in Bitso (2011) to investigate the information needs and seeking patterns of secondary level geography teachers in Lesotho. Andrews *et al.* (2005) used descriptive survey to collect and analyse data on the information seeking behaviour of a primary care practice-based research network (PBRN) for supporting the patient's care in Kentucky medical libraries in the United States.

Descriptive research design is therefore used in the current study to survey medical faculty information behaviour. The descriptive design is consistent with mixed method. Descriptive research is concerned with gathering data from a representative sample of population (Brink *et al.,* 2012) using observation, questionnaire, interview or survey.

4.5 Population of Study

The population of a study comprises all the objects, subjects or members that conform to a set of specifications in research (Polit and Hungler, 1999: 37). The study population consists of faculty (medical doctors and nurses) involved in teaching, research and patient care in the three selected tertiary health institutions in Kwara State, Nigeria. The population also included the management staff that are overall heads of the institutions, deans, department heads and medical librarians in the three selected tertiary health institutions. The management staff are responsible for policy development, implementation and administration. The medical librarian performs the function of supporting the faculty with information services for academic development. Table 4.1 below shows the population of the tertiary health institutions in Kwara State as obtained from the College of Health Sciences, University of Ilorin and Kwara State Ministry of Health websites, http://www.cohs.unilorin.edu.ng/ and http://kwarastate.gov.ng/health/ respectively.

Table 4.1 Population of Participants

S/N	Institutions	Total Population	Doctors	Nurses	Librarians
1.	College of Health Sciences, University of Ilorin	352	171	180	1
2.	Kwara State School of Nursing and Midwifery, Ilorin	58	Nil	57	1
3.	Sobi Specialist Hospital, Ilorin	36	11	18	1
Total		**446**	**182**	**255**	**3**

(Source: College of Health Sciences, University of Ilorin and Kwara State Ministry of Health)

4.6 Sampling Procedures

The purpose of a sampling procedure in a study is to take a fragment of a population which is representative of the total population. Corbetta (2003) posits in sampling a part of a population is observed with a view to gathering information about the whole population. LoBiondo-Wood and Haber (2014) describe sampling procedure as the selection of a portion of the population to represent all the population.

Due to the varying roles of the different groups of respondents (i.e. teaching, research and patients care), a mixed sampling method was employed. According to Creswell (2009) a mixed sampling method in research is a procedure for selecting samples or mixing more than one sampling method in a single study. Al- Suqri (2007) adopted a mixed sampling method to survey the information seeking behaviour of social science scholars at Sultan Qaboos University in Oman. The study confirmed that the method allows analysis of data from a variety of perspectives to enhance research integrity. The mixed sampling methods that include non-proportional random sampling, purposive and census methods were used for this study. A census method is usually adopted in cases where the population is not large in order to allow a meaningful sample to be taken and for the result of the research to be generalizable. Therefore, to have a justifiable number of faculty the census method was employed for the Kwara State College of Nursing and Midwifery and Sobi Specialist Hospital for participation in the survey. The management staff (heads of institutions), deans, of faculties, heads of academic departments and medical librarians in the three tertiary health institutions were recruited for the study.

With regard to sampling of medical faculty, Israel's (1992) table of selecting sample sizes was used (see Appendix 16). According to Israel (1992), if the population is 446 at a precision of ±5%, the sample should be 222 at 95% confidence level. Therefore, a sample size of 222 of faculty was taken. The non-proportional sampling procedure was further used to determine the samples of respondents in the following institutions: College of Health Sciences, University of Ilorin, Kwara State School of Nursing and Midwifery, Ilorin and Sobi Specialist Hospital, Ilorin. The distribution of the samples is presented in Table 4.2 below.

Table 4.2 Distribution of Sample Sizes for the Institutions

Institutions	Population	Sample size	No. of Doctors	No. of Nurses	Mgt. staff	Dept. Heads	Medical Librarian
College of Health Sciences, University of Ilorin	352	128 (57.7%)	50	72	2	3	1
Kwara State School of Nursing and Midwifery, Ilorin	58	58 (26.1%)	Nil	52	2	3	1
Sobi Specialist Hospital, Ilorin	36	36 (16.2%)	12	18	2	3	1
Total	**446**	**222 (100%)**	**62**	**142**	**6**	**9**	**3**

4.7 Data Collection Procedures

The researcher designed and administered a survey questionnaire to the medical faculty to solicit and collect data on information needs, information sources, information utilisation, information sharing, and the challenges facing medical faculty in their information seeking activities. The questionnaire was used to collect quantitative data from 222 medical faculty using the sample sizes in Table 4.2 above. The survey questionnaire was used to collect data in order to enable the researcher to validate the responses that emerged from qualitative data collected through interviews (Kimchi, Polivka and Stevenson, 1991). Gillham (2000) also pointed out that survey questionnaire can gather data from a larger sample and more geographically scattered community than would be possible using any other technique. Powell (1997) lists the advantages of survey questionnaires in research as being that

questionnaires encourages frank answers or responses, helps to reduce interviewer bias, eradicates variation in the questioning process, makes data relatively easy to collect and analyse, collects a large amount of data in a very short time, and it is inexpensive to administer.

The questionnaire was administered personally to the participants in their offices. The researcher was always on hand when the questionnaire was being administered to guide the respondents about queries that could emerge (the questionnaire is contain in Appendix 3). The survey questionnaire contained the following sections:

Section A: Personal data of respondents - participant's gender, age, educational qualification, nationality, institution where faculty work, status as adjunct or full-time, department/unit, Job title, experience since qualified and on the job;

Section B: Information needs, seeking and expression by medical faculty- information needs for job roles, expression of information needs, meeting attendance where faculty seek and share information on job roles, and frequencies of seeking information;

Section C: Information sources available to medical faculty - information sources in the institution's library, reasons for using information sources and types of information sources and services provided by the institution library;

Section D: Information sharing- sharing information about job roles, reasons for information sharing and collaboration;

Section E: Problems experienced when seeking, sharing and using information- problems of information seeking, sharing and collaboration and inhibitors to accessibility of institutional library were covered in this section;

Section F: How to improve information resources and services - medical faculty degree of satisfaction with available information infrastructure and suggestions on how to improve information services in the in the tertiary health institutions. Related studies that have successfully used survey questionnaires include among others (Myers, Well and Lorch 2010; Myers 2010; Odhiambo 2000; Zimmer 2011).

Qualitative data were gathered from the management staff and the medical librarians using semi-structured interviews (see Appendices 4 and 5). The semi-structured interview was

administered to 18 management staff who comprised of heads of institutions, directors, deans, and departmental heads, and 3 medical librarians in the three tertiary health institutions (see Table 4.2). The interview schedules solicited information on demographics, roles, information infrastructure, capacity building, challenges and amelioration strategies for these challenges. They also covered information infrastructure, information policies, information services, capacity building plans, resources and budgets.

Bryman (2004) submits that interviews enable enquirers to seek in-depth details on issues in the other research instruments. Interviews serve to make up for issues not comprehensively covered in the questionnaire and at the same time provide an answer to semantically difficult questions. Bertrand and Hughes (2005) also noted that interviews are an appropriate method in research for seeking qualitative and descriptive in-depth data from research participants. The interview allows the interviewer to adapt to the interview guide to the respondents. Furthermore, the interview offers a researcher the opportunity to ask interviewees questions and follow up questions as appropriate verbally to elicit deeper responses during the interview session (Bryman, 2004). Bertrand and Hughes (2005) posit that the interview allows interviewees to respond to the interview questions with flexibility, clarify meanings and share understanding.

Related studies that investigated the information seeking behaviour of academic and professional healthcare researchers (Al-Moumen 2009; Borgman *et al.* 2005; Salajeghe and Hayati 2009; Saunders *et al.* 2012) adopted the interview to complement the survey questionnaire. For instance, Borgman *et al.* (2005) adopted the interview for data collection in a study of the information seeking behaviour and use of information resources among the teaching faculty in Los Angeles, USA. Salajeghe and Hayati (2009) also employed interviews to collect data on information seeking behaviour of medical staff in Iranian medical schools.

Furthermore, a combination of both a survey questionnaire and interview schedule have been adopted in similar studies on information seeking behaviour studies (Allen, 2013; Andrews *et al.*, 2005; Duggan, 2000; MacIntosh-Murray, 2003; Tannan, 2012; Zimmer, 2011; Brock, 2011; Daly, 2012). Bryman (2004) affirmed the use of two or more research instruments in data collection. Mohamed-Arraid (2011) examined the information seeking behaviour of Libyan doctors using a multi-method survey in order to increase understanding of quantitative data and obtain more in-depth information of qualitative data. The multimethod

approach helps to integrate the advantages of both methods (Remus and Wiener, 2010; Hall and Taylor, 2003).

4.8 Validity and Reliability of Instruments – Results of the Pilot test

A pilot test was used to pre-test the questionnaire and interview schedule, on 36 medical faculty and management staff at the Ladoke Akintola University of Technology, Teaching Hospital (LAUTECHTH) at Ogbomosho, Oyo State Nigeria. The pre-test utilised Exploratory Factor Analysis (EFA), a statistical method that describes variability among observed correlated variables in order to discover a lower number of unobserved variable (Field, 2005).

The study employed the Exploratory Factor Analysis (EFA) technique, to help represent a large number of relationships among interval-level variables in a simpler (more parsimonious) way. The application of EFA was done to determine which of a large set of items in a research instrument "hang together" as a group, or was answered most similarly by the target respondents (Field, 2005). It was postulated that there is a smaller set of unobserved (latent) variables or constructs that underlie the variables that were observed or measured. EFA was useful in understanding the relationship between variables. The EFA and correlation matrix were used by Podsakoff, MacKenzie, Lee and Podsakoff (2003) to discover common biases in behavioural research and provide remedies.

Reliability tests indicate the degree to which the research instrument is without bias (Fraenkel, Wallen, and Hyun, 1993). The reliability test is usually applied to the research instrument to estimate the internal-consistency. The pilot test sought "frequency at which medical faculty utilised the library" for carefully selected purposes ranging from "personal to answering colleagues queries and other purposes" (see section C. 9 of the questionnaire). The nine variables on five Likert scales from "1=strongly agree" through to "5=strongly disagree" were answered. This was aimed at determining which of the nine variables measured similar latent (unobserved) variables (or constructs) in terms of their correlation or their factor loadings.

The result of the pilot with corresponding EFA through the correlation matrix, Kaiser-Meyer-Olkin, Bartlett's Test, total variance and eventually rotated factor matrix are presented in Table 4.3 below.

Table 4.3: Correlation Matrix[a]

	Personal purposes	Teaching improvement	Research purposes	Answering patients' queries	Improve patients' outcome	Keep up-to-date	Continuing education	Answer colleagues queries	Other purposes
Personal purposes	1.000	.459	.597	.365	.470	.462	.542	.460	.308
Teaching improvement	.459	1.000	.583	.371	.566	.695	.688	.393	.492
Research purposes	.597	.583	1.000	.331	.538	.554	.699	.536	.517
Answering patients' queries	.365	.371	.331	1.000	.520	.244	.446	.412	.495
Improve patients' outcome	.470	.566	.538	.520	1.000	.578	.589	.469	.430
Keep up-to-date	.462	.695	.554	.244	.578	1.000	.634	.399	.415
Continuing education	.542	.688	.699	.446	.589	.634	1.000	.493	.426
Answer colleagues queries	.460	.393	.536	.412	.469	.399	.493	1.000	.420
Other purposes	.308	.492	.517	.495	.430	.415	.426	.420	1.000

a. Determinant = .009

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The results in Table 4.3 show a correlation matrix of 9 variables which are a breakdown of the four constructs selected from the questionnaire items associated with each other in the instrument relating to Research Question 3 (see section 4.1 for research questions). Some of the correlation coefficients are either positively or negatively high (e.g. + or − 0.60 or greater) and some are low (i.e. near zero). The high correlations indicate that two variables of teaching improvement (1.000) and continuing education (1.000) are associated and will probably be grouped together by the factor analysis.

Where the determinant as shown in the Table (e.g. 0.009) is greater than 0.00001, the factor analysis is said to have a possible solution. The factor analysis assumed that the Kaiser-Meyer-Olkin (KMO) was greater than 0.70 as shown in Table 4 below since we have 0.872. This result implies that an adequate sample for factor analysis in the pilot study was taken. The results from the Bartlett test (KMO) were significant thus providing a reasonable basis for factor analysis. The significance level in Table 4.4 is .000. Thus since the result is less than 0.05, one can conclude that the variables presented in Table 4.3 above are correlated and high enough to provide a reasonable basis for factor analysis.

Table 4.4 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.872
Approx. Chi-Square	1018.323
Bartlett Test of Sphericity	36
Sig.	.000

The total variance presented in Table 4.5 is divided to shows how the variance among the nine possible factors explained variance in the eigenvalues (See Table 4.5 below). Although only 1 factor has eigenvalue (a measure of explained variance) greater than 1.0, the next four factors have approximately one eigenvalue. It means that the other five factors explained more information than a single variable would have explained. In terms of cumulative variance, these five factors explained 69.211% in the data. To explain the actual result of this analysis, the rotated factor matrix in Table 4.6 is, therefore, useful.

Table 4.5 KMO and Bartlett's Test

Factors	Initial Eigenvalues			Extraction Sums of Squared Loadings			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative e %	Total	% of Variance	Cumulative %
1	4.953	55.037	55.037	4.655	51.723	51.723	2.037	22.630	22.630
2	.932	10.350	65.387	.706	7.845	59.569	1.940	21.559	44.189
3	.735	8.166	73.553	.387	4.305	63.873	1.205	13.389	57.578
4	.611	6.792	80.345	.352	3.906	67.780	.905	10.051	67.629
5	.513	5.695	86.040	.129	1.432	69.211	.142	1.582	69.211
6	.406	4.516	90.556						
7	.374	4.154	94.710						
8	.269	2.985	97.695						
9	.207	2.305	100.000						

Extraction Method: Principal Axis Factoring.

Based on absolute factor loadings greater than or equal to 0.3, Table 4.5 reveals that all loadings (or correlation coefficients) of each variable within the factor are positive. This result implies that the research need not interpret the study variables in the opposite direction from the factor. For instance variable 3 which reads: "Medical faculty utilises the library to improve patients' outcome" could mean "Faculty never utilises the library to improve patients' outcome" if it has carried a negative loading in Table 4.5.

Table 4.6 Rotated Factor Matrix[a]

Items	Factor			
	1	2	3	4
Keep up-to-date	.813	.311		
Continuing Education	.562	.537		
Improve Patients' Outcome	.485	.384	.419	
Research Purpose	.337	.780		.310
Personal Purposes	.306	.592		
Answer Colleagues' Queries		.516		
Answer Patients' Queries			.828	
Other Purposes				.757
Teaching improvement	.706	.301		

 a. Rotation converged in 6 iterations.

The first factor, which seems to index **patients' outcome improvement**, loads most strongly on the first four items including utilising the library to keep up-to-date, continuing education, patients' outcome improvement, and teaching improvement, with loadings in the first column. The second factor, which seems to index **research purpose**, loads most strongly on four items including utilising the library for continuing education, research purpose, answering colleagues' queries and personal purposes, with loadings in column 2 of

the Table. The third factor, which index patients' outcome on the fourth factor, "other purpose of utilising the library loads" very high. The result implies that the fourth factor seems to index "other purposes of utilising the library".

Therefore, the results from the EFA confirmed that the observed variables in the instrument are enough to give an adequate response. Based on these results, the instruments were considered reliable and valid to gather requisite data on information behaviour of medical faculty in tertiary health institutions in Kwara State Nigeria.

4.9 Data Analysis

The Statistical Package for Social Sciences (SPSS) version 21 was applied to analyse the quantitative data collected through survey questionnaire while data collected through interview was analysed using thematic and content analysis. SPSS software allows large quantities of data processing by a computer, and also the organisation and interpretation of such data (Polit and Beck, 2004). Table 4.7 below presents sources of data and data analysis strategies. Braun and Clarke (2006) argue that thematic and content analysis offer an accessible and theoretically flexible approach compared to other qualitative analytic methods that search for themes or patterns.

Table 4.**7** Research Questions, Data Sources and Data Analysis Strategies

No	Research questions	Approach	Source of data	Methods of Analysis
1.	What are the information needs of medical faculty in tertiary health Institutions in Kwara State Nigeria?	Quantitative and qualitative	Survey questionnaire interview and literature review.	SPSS to generate percentages and frequencies, Thematic and contents analysis for qualitative data
2.	How does medical faculty express their information needs in meeting their jobs roles in tertiary health institutions?	Quantitative and qualitative	Survey questionnaire interview and literature review.	SPSS to generate percentages and frequencies, Thematic and contents analysis for qualitative data
3.	How does medical faculty in tertiary health institutions seek, share and utilise medical information for teaching, research and patients care?	Quantitative and qualitative	Survey questionnaire interview and literature review.	SPSS to generate percentages and frequencies, Thematic and contents analysis for qualitative data
4.	What are the information sources available to medical faculty in tertiary health institutions?	Quantitative and qualitative	Survey questionnaire interview and literature review.	SPSS to generate percentages and frequencies, Thematic and contents analysis for qualitative data
5.	What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how they can they overcome?	Quantitative and qualitative	Survey questionnaire interview and literature review.	SPSS to generate percentages and frequencies, Thematic and contents analysis for qualitative data

4.10 Ethical Considerations

Ethics in research is aimed at promoting the integrity of the research outcome. Research ethics also limits researcher's bias. In this study, the researcher designed a consent form for respondents to fill in and sign to ensure that all willingly consented to participate in the research. The researcher also assured the respondents of confidentiality and that the responses they gave would not be divulged to any third party. Also, respondents were informed that they were free to withdraw from participating in the study at any point without any consequences. The researcher also complied with the ethical research protocol of the University of KwaZulu-Natal (see Appendix 2). In addition, the researcher obtained permission from tertiary medical institutions in Kwara State, Nigeria to conduct the study (see Appendices 6-11). The researcher was further required to participate in the Collaborative Institutional Training Initiative (CITI) course modules as a requirement for conducting human research in the surveyed tertiary health institutions (Certificate attached as appendix 16).

4.11 Summary

This chapter presented the research methodology. The following aspects were covered: research paradigm, research approach, research design, and population of study, sampling procedure, data collection procedures, results of EFA from the pilot study, data analysis and ethical considerations.

Data were collected using survey questionnaire and in-depth interviews. SPSS version 21 was used to analyse the quantitative data collected through survey questionnaires to generate descriptive and inferential statistics. Interviews were also conducted. Thematic and content analysis were used to analyse the qualitative data. The ethical protocol of the University of KwaZulu-Natal was complied with.

CHAPTER FIVE

DATA ANALYSIS AND PRESENTATION OF FINDINGS

5.1 Introduction

The purpose of this study is to investigate the information behaviour of the medical faculty in three tertiary health institutions in Kwara State Nigeria. The following research questions are addressed:

1.) What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria?

2.) How do medical faculty express their information needs in meeting their job-related roles in tertiary health institutions?

3.) How do medical faculty in tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care?

4.) What are the information sources available to the medical faculty in tertiary health institutions?

5.) What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how do they overcome these problems?

In Chapter 4, research methodology including research paradigm, research approach, research design, population, data collection, data analysis, reliability, validity and ethical considerations were discussed. Survey questionnaires and interviews were employed to collect data. Data were collected in the following areas: information needs, information seeking behaviour, information expression, information sources, information utilisation and channels of sharing information by the medical faculty for purposes of teaching, research and patients care. Information behaviour models of Wilson (1994) and Leckie, Pettigrew and Sylvain (1996) were adopted to underpin the study.

This Chapter is organised around the research questions, key variables of the theory underpinning the study and broader issues related to the research problem. In the following areas the results are presented: response rate, demographic information, information needs and information seeking of the medical faculty, provision and sharing of information among medical faculty and utilisation of information by medical faculty. Results are also presented for other aspects related to the research questions. For instance, tools used to access

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information in the library and other information sources, reasons for which medical faculty use information sources, the level of information sources awareness and satisfaction with information services among medical faculty. Additionally, challenges encountered by faculty in seeking information, how the challenges are addressed and summary of the findings are presented.

5.2 Response Rate

A total of 222 respondents were recruited for the survey from the medical faculty population of 446, in the three tertiary health institutions selected for the study (see Table 4.1). A total of 162 participants responded and completed the survey questionnaire giving a response rate of 73%. Furthermore, 18 key informants among the management staff were selected for the in-depth interviews involving heads of institutions, heads of departments and medical librarians as shown in Appendix 12. From the 18 management personnel, 12 respondents were interviewed, representing a 66% response rate. Other selected personnel who could not be interviewed cited tight schedules and other commitments.

Babbie and Mouton (2001) opine that a response rate of at least 50% is adequate for analysis of a survey, 60% is considered good while a 70% return rate is considered excellent. Bailey (1978) asserts that an adequate response rate in a study depends on how much time and money the researcher conducting the study is willing to spend on the study with additional support and cooperation from the sites of the study.

Response rates for both the quantitative and qualitative data in this study are comparable to previous related studies (Al-Muomen, 2009; Al-Ansari, 2006; Rehman and Ramzy, 2004) that recorded 44.4%, 65.6%, 65.4% and 76.6% response rates respectively. Three research assistants were recruited to administer the survey questionnaires while the researcher administered the interview schedule. The research assistants were recruited for administering the questionnaires as they have good knowledge of the respondents' offices, clinical schedules of medical faculty and making follow ups on respondents.

5.3 Data Analysis and Presentation of Findings

The findings presented are in the order they appeared on the instruments. The interviews were transcribed and organised into themes and analysed qualitatively. Table 5.1 shows the categories of participants. The interview schedules and detailed transcript of results of the interview are presented in appendices. Appendices 4 interview schedule is for head of

Institutions, appendix 5 is interview schedule for medical librarians, while interview schedule 4 is also for Head of Departments in the institutions.

Table 5.1 Categories and Coding of Interview Participants (N=18)

S/N	Category	Codes
1	Medical Librarians (3)	ML 001-002
2	Head of Institutions (3)	HI 001-003
3	Head of Departments in the Institutions (12)	HDI 001-007

As shown in Table 5.1 above 12 respondents participated in the interview including two medical librarians, three heads of institutions and seven heads of departments respectively out of 18 respondents.

5.4 Demographic Information

The demographic information of the respondents from the three selected tertiary health institutions in Kwara State is captured in Figures 5.1-5.9 respectively. The results show the gender, age, educational qualifications, nationality and institutional affiliations.

5.4.1 Distribution Gender of Faculty

The gender distribution of the medical faculty in this study are as revealed in figure 5.1.
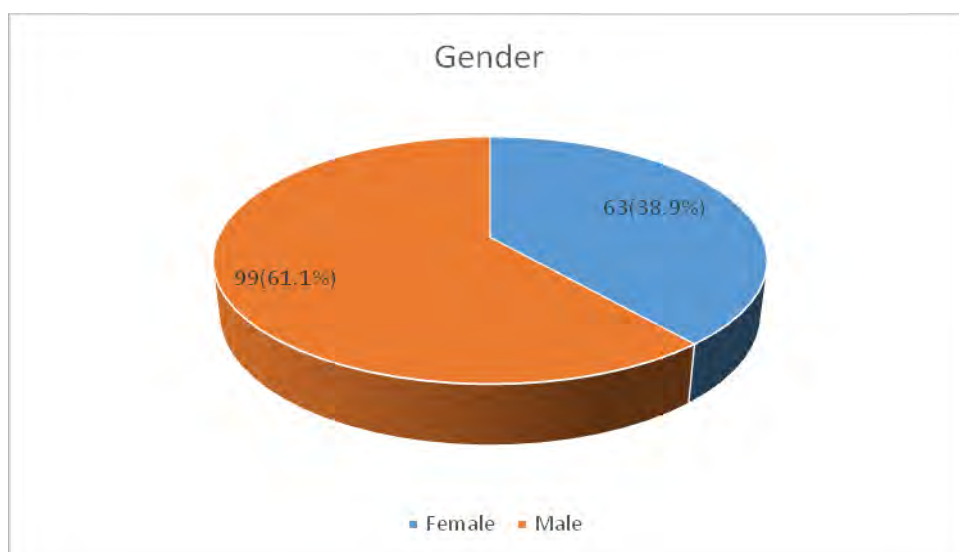
Figure 5.1 Gender of respondents (N=162)

The summary of findings in Figure 5.1 reveals that all the 162 participants included in the sample disclosed their gender. Overall, 99 (61.1%) of respondents were males and the remaining 63 (38.9%) were females. The results indicated that there were more male medical faculty in the tertiary health institutions in Kwara State than their female counterparts. Further analysis of qualitative result reveals two male medical librarians in the College of Health Sciences (CHS), University of Ilorin and Kwara State College of Nursing and Midwifery.

5.4.2 Age Distribution of Faculty

This study investigated the age distribution of the faculty and the results in figure 5.2 indicated the age respondents.
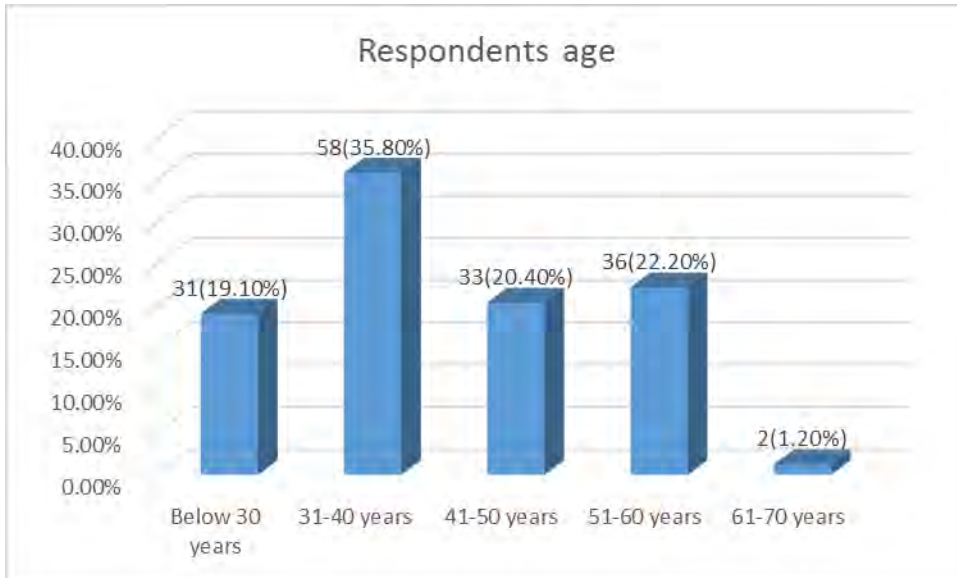
Figure 5.2 Age Distribution of Respondents (N=162)

Age distribution in Figure 5.2 shows that the largest number of respondents, 58 (35.8%) belonged in the age range of 31-40; followed by 36 (22.2%) of respondents who were in the age range 51–60; 33(21%)respondents were in the age range of 41–50 years 31 (19%) were below 30 years and 2(1.2%) belonged to the age range of 61-70 years. The age distribution of faculty indicates that there were more respondents in the age range of 31-40 years and the least number of respondents were in the range of 61-70 years.

5.4.3 Respondents Highest Educational Qualification (N=162)

The investigation into respondents' highest academic qualification is revealed in Figure 5.3.
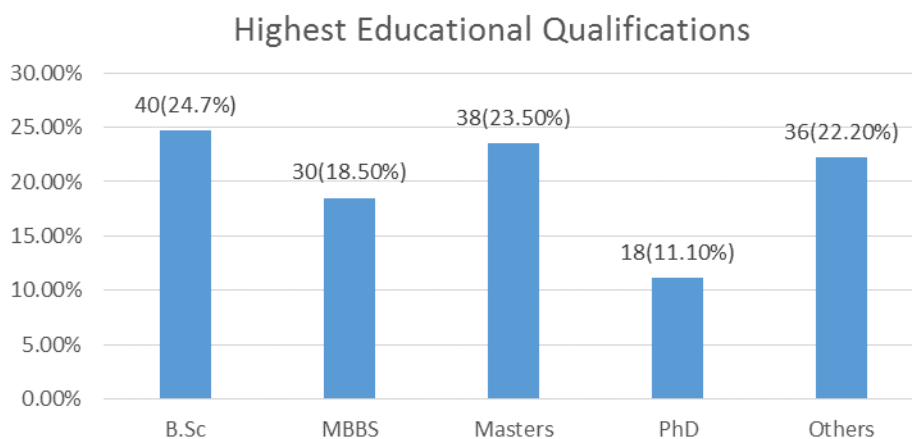
Figure 5.3 Respondents' Highest Qualifications (N=162)

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The results in Figure 5.3 show that 40 (24.7%) of respondents were holders of BSc degree; 38 (23.5%) were master's degree holders. The results also revealed that 36 (22.2%) of respondents had other types of educational qualifications which included Ph.D. holders, 30 (18.5%) of the respondents had Bachelor of Medicine and Bachelor of Surgery (MBBS) and 18(11.1%) respondents were Ph.D. holders. The result shows that majority of the respondents were BSc holders. Concerning their highest qualifications, the medical librarian at University of Ilorin College of Health Sciences has a Ph.D. while the Librarian at Kwara State College of Nursing and Midwifery holds a Bachelor of Arts in Library Science. All the respondents were Nigerian by nationality.

5.4.4 Distribution of Faculty by Institution of Affiliation

The results in Figure 5.4 show the respondent's institutional affiliation.
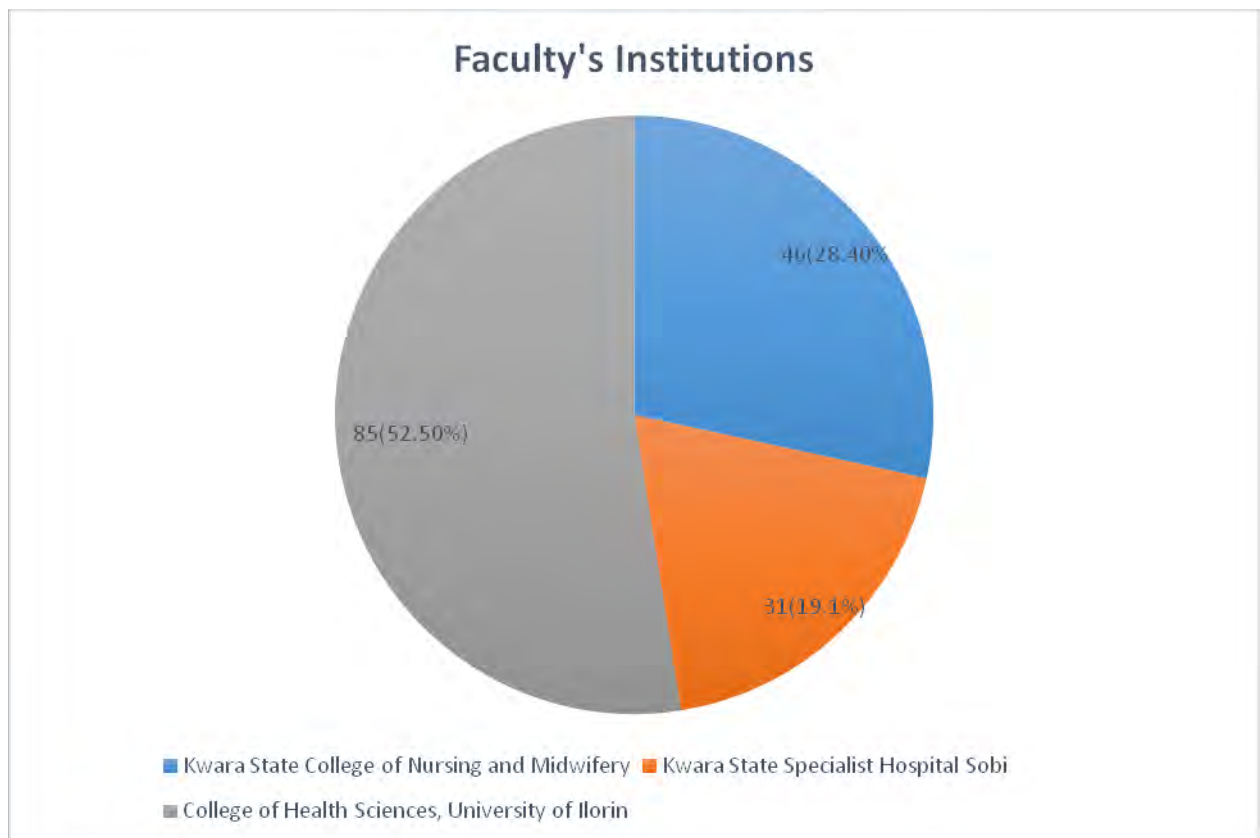
Figure 5.4 Faculty's Institution of Affiliation (N=162)

The results in Figure 5.4 show that 85 (52.5%) of the respondents were from the College of Health Sciences (CHS), University of Ilorin, and 46 (28.4) were from Kwara State College of

Nursing and Midwifery (CONM), Ilorin. The smallest group, 31 (19.1%) of respondents were from Kwara State Specialist Hospital Sobi, Ilorin (SSH).

The results reveal that the majority of the participants in the survey were from CHS, University of Ilorin. Only two of the institutions had medical librarians.

5.4.5 Job Status of Faculty

The study also examined the job status of the respondents and the results are as shown in Figure 5.5.
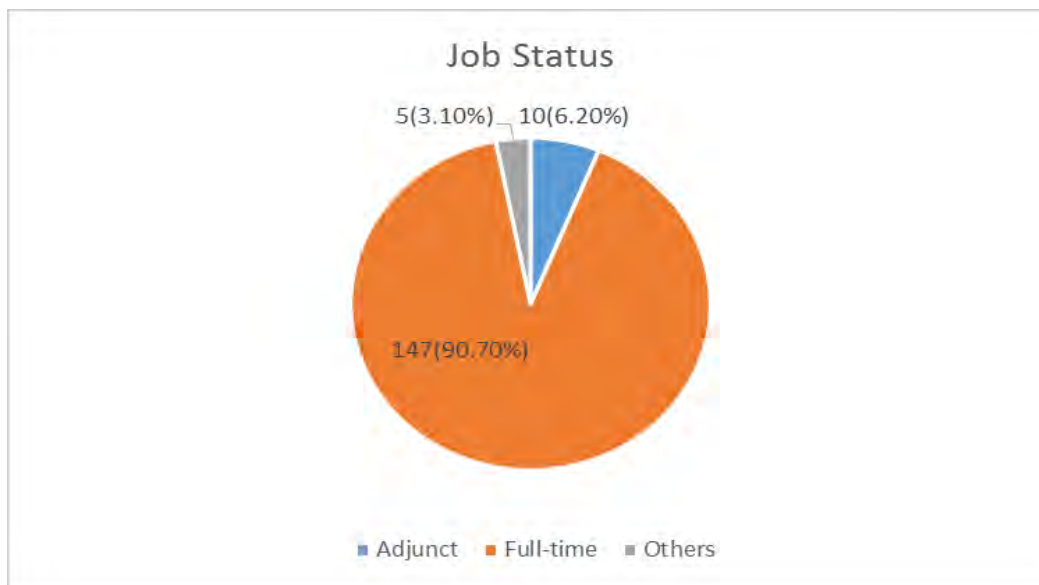
Figure 5.5 Job Status of Faculty (N=162)

The results in Figure 5.5 on job status show that 147 (90.7%) of respondents were full-time staff members, 10 (6.2%) respondents were adjunct staff while and 5 (3.1%) were other staffers. The results in Figure 5.5 thus reveals that the majority of respondents were working full-time in the three selected tertiary health institutions while the number of adjunct and other staffers was in the minority among the respondents.

5.4.6 Distribution of Faculty's Departments of Affiliation

In this study, the respondents were investigated about their department of affiliation. The results in Figure 5.6 reveal the departments of respondent's affiliation.
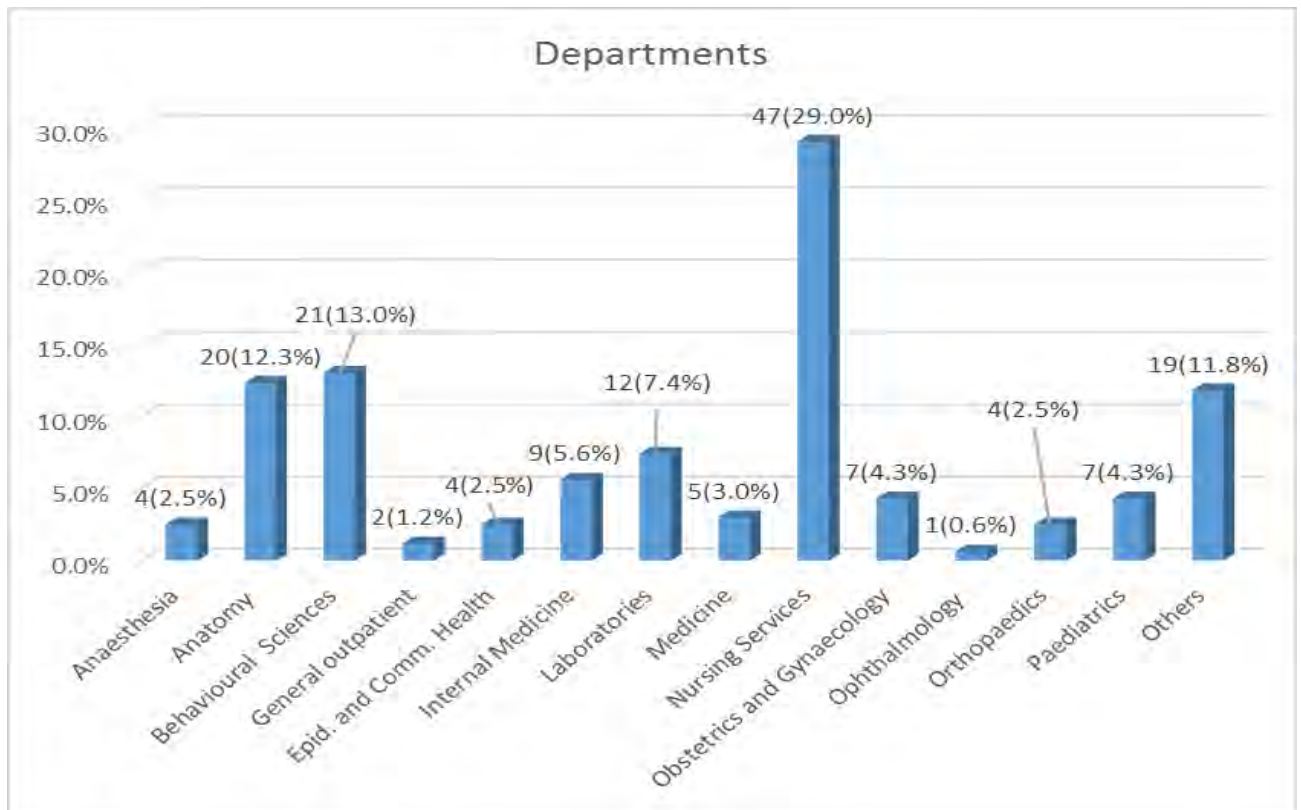
Figure 5.6 Departments of Respondents (N=162)

Respondents were spread across 14 departments. Of the respondents, Nursing Services employed 47 (29.0%) of the respondents, Behavioural Sciences 21 (13.0%), Anatomy 20 (12.3%), and 'other' departments (not named) 19 (11.8%). These four departmental groups accounted for just over 66% of the respondents. Moreover, respondents affiliated to Laboratories comprised 12 (7.4%), Internal Medicine 9 (5.6%), Obstetrics and Gynaecology 7 (4.3%), Paediatrics 7 (4.3%), Medicine 5 (3.0%), Anaesthesia 4 (2.5%), Orthopaedics 4 (2.5%), Epidemiology and Community Health 4 (2.5%), General Outpatient 2 (1.2%) and Ophthalmology 1 (0.6%) respectively. The majority of the participants were from the Nursing Services department in the participating tertiary health institutions.

5.4.7 Distribution of Respondents' Job Title

The study examined the job title of the respondents. Results in Figure 5.7 indicate the job titles of the respondents.
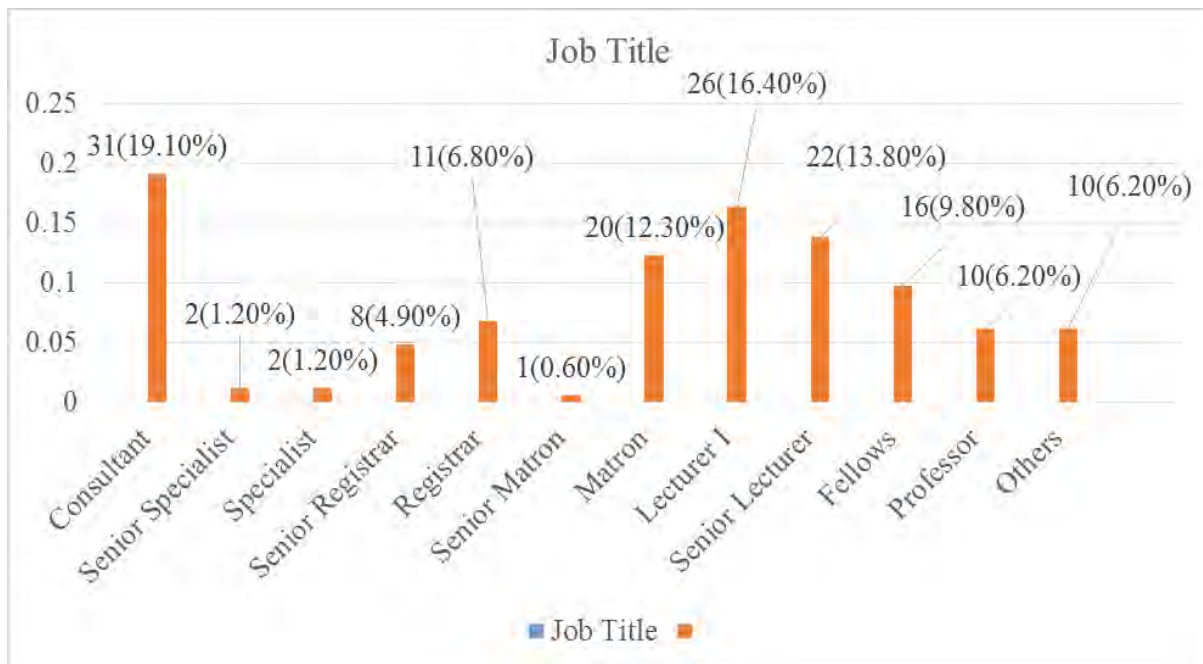
Figure 5.7 Respondents' Job Title (N=162)

The job titles of respondents were as follows in descending order of frequency: Consultant 31 (19.1%), Lecturer I 26 (16.4%), Senior Lecturer 22 (13.8%), Matron 20 (12.3%), Fellows 16 (9.8%), Registrar 11 (6.8%), Professors 10 (6.2%), other 10 (6.2%), Senior Specialists 2 (1.2%), Specialists 2 (1.2%) and Senior Matron 1 (0.6%).

The results presented in Figure 5.7 reveal that consultants formed the majority among the respondents. Results from the qualitative investigation revealed that the tertiary health institutions adopted the nomenclature of medical librarian for their heads of libraries.

5.4.8 Post Qualification Experience of Faculty

The nature of post qualification experience of respondents are tabulated in Figure 5.8.
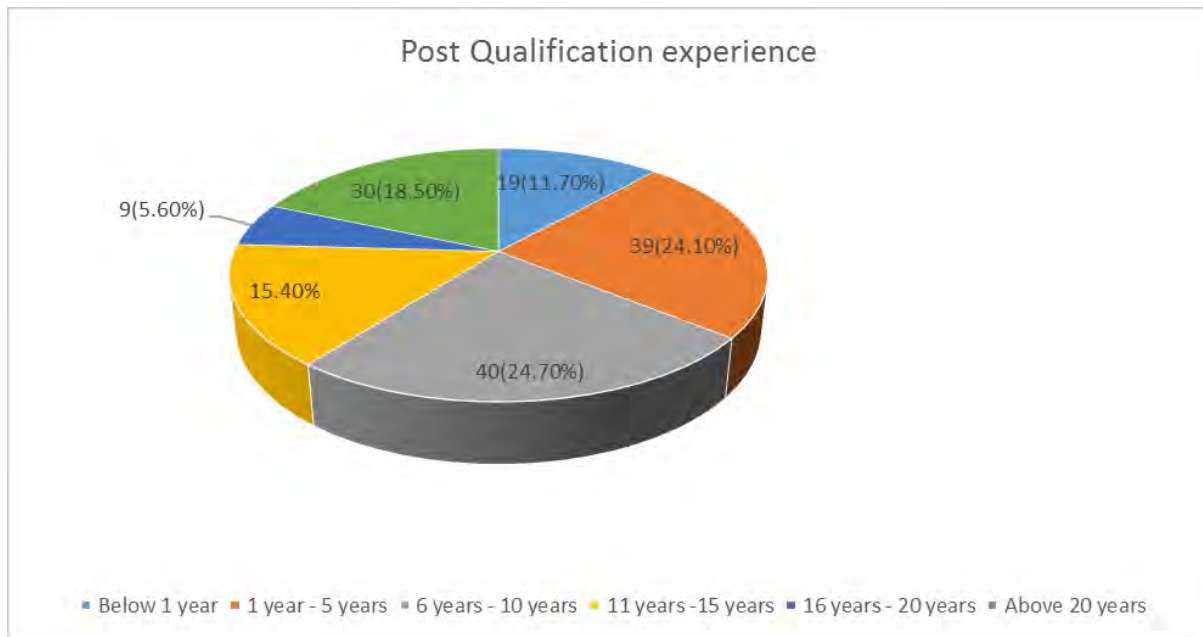
Figure 5.8 Post Qualification Experience (N=162)

The results show that 40 (24.7%) of participants had 6-10 years post qualification experience, with 39 (24.1%) of respondents having 1-5 years of post-qualification experience. Post qualification experiences of 30 (18.5%) respondents amounted to 20 years and above; respondents with less than one year experience numbered 19 (11.7%) and 9 (5.6%) respondents had 16-20 years of post-qualification experiences in the institutions. The results in Figure 5.8 further show that respondents with 6-10 years post qualification experience were in the majority and those 9 (5.60%) respondents who had 16-20 years post qualification experience in the institutions were in the minority.

5.4.9 Years of Experience in the Institution (N=162)

Presented in Figure 5.9 below, are years of experience of the participants experience in the particular tertiary health institutions.
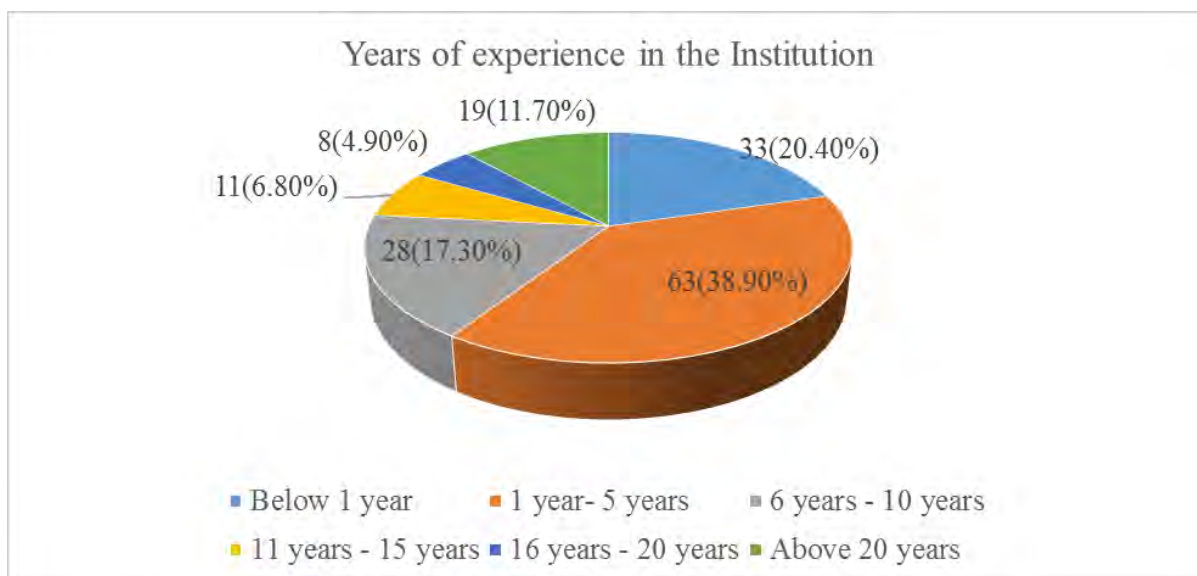
Figure 5.9 Years of Experience in the Institution (N=162)

The result shows a varying number of years that respondents had spent in the selected tertiary health institutions. The results indicate that 63 (38.9%) of respondents had spent 1-5 years in the institutions, 28 (17.3%) had spent 6-10 years in the institution. Furthermore, 19 (11.7%) respondents had spent above 20 years in the institution; 11 (6.8%) and 8 (4.9%) of the respondents had spent 11-15 years and 16-20 years working in the institutions respectively.

Respondents with 1-5 years' experience were in the majority. Results from the qualitative data analysis showed that the College of Health Science Medical Librarian had twenty-five years on the job experience while the medical librarian at Kwara State College of Nursing and Midwifery had six years on the job experience.

5.4.10 Roles Performed by Medical Librarians

The qualitative results show that the roles performed by medical librarians varied from one organisation to another. In general, they performed both the administrative and professional mandates that include academic support and information provision. According to one medical librarian:

> *"As a medical librarian I am performing the administrative and professional roles and I am a member of the College of Health Sciences Board of Examiners. As an administrator, I have to make decisions concerning staff career and welfare and I relate with the medical faculty at higher pedestal as*

colleagues and make decisions that will take the College to higher fortunes."
(ML001)

Another medical librarian responded in a similar vein while narrating his roles:

> *"My role as Medical Librarian is to facilitate the work of the library, to manage human and material resources in the library and to recommend to the management the information needs of staff and students for them to take a look at it. My role also includes providing instructional education on how to maximally use the entire information infrastructure available in the college."*
> *(ML002)*

5.5. Information Needs, Expression of Information Needs and Information Seeking in Meetings

In this section, the results from research questions 1-3 (see Section 5.1) are reported in terms of the information needs, the way respondents expressed their information needs and information seeking behaviour of the respondents respectively.

5.5.1 Information Needs of Medical Faculty (RQ1)

The results in Table 5.2 show the information needs of respondents' for improving their different job roles. Respondents were free to choose more than one option.

The information needs of respondents for various job-related roles were examined and the results are presented in Table 5.2.

Table 5.2 Information Needs of Respondents (N=162)

Statements	Frequency (N)	Percent (%)
Information needs for improving faculty roles		
Teaching role	106	65.4
Research engagements	23	14.2
Patients outcome	11	6.8
Professional up-to-date	7	4.3
Knowledge	3	1.9
Continuing education	1	0.6
Writing research papers/publication	8	4.9
Others	3	1.9

The results show that information needs for improving faculty teaching roles was recorded by 106 (65.4%) respondents; information needs for research engagements was indicated by 23 (14.2%) respondents; information needs for patients outcomes was indicated by 11(6.8%) respondents, information needs for writing research papers/publication by 8 (4.9%) repondents , and professional up-to-date information needs by 7 (4.3%) respondents. Results further indicated that respondents also needed information to a much lesser extent for improving their knowledge (3 (1.9%)), information for other improvements (3 (1.9%)); and information for continuing education by 1 (0.6%) respondent. Respondents were free to choose more than one option.

Results in Table 5.2 reveal that information need for teaching purposes is by far the highest need among the faculty in the tertiary health institutions.
 The teaching role of the faculty was further elaborated on by one the head of departments who said:

> *"I am a Professor, researcher, Consultant in cardiovascular diseases my roles include teaching of undergraduates and postgraduates students in the classroom and at the bedside." (HD002)*

5.5.2 Ways through Which Respondents Express Their Information Needs (RQ 2)

Research question 2 covered the ways through which medical faculty expressed their information need for meeting their job roles (see Section 5.1).

Results in Table 5.3 reveal ways through which respondents expresses their information needs in various tertiary health institutions.

Table 5.3 Ways through which Respondents Expressed their Information Needs (N=162)

Statements	Frequency (N)	Percent (%)
Ask senior colleagues	87	53.7
Search the internet	33	20.4
Consult institution library/collection	22	13.6
Ask other colleagues	13	8.0
Consult personal collection (e.g. book, journals and reports)	4	2.5
Consult dept./unit collection	2	1.2
Others	1	0.6

The results presented in Table 5.3 show that medical faculty expressed their information needs in various ways. The results reveal that asking senior colleagues 87 (53.7%) was the most common; searching the Internet 33 (20.4%); consulting institution library collections 22 (13.6%); asking other colleagues 13 (8%); and consultation with department/unit collections (2 (1.2%); consulting personal collections such as books, journals and reports 4 (2.5%); consulting other sources 1 (0.6%). Respondents were free to choose more than one option.

The results showed that expressing information needs by asking for the assistance from senior colleagues recorded the highest responses. Analysis of qualitative data also revealed that computers had changed the traditional ways through which faculty expressed their information needs as shown in the following verbatim views of respondents.

> *"The advent of the computer is gradually eroding the traditional ways of medical faculty expression of information needs and we are now planning a multimedia section to replace the audio-visual section. Most of the information needed by medical faculty are in the medical databases and journals providing ways to meet the faculty information needs. Since e-book has replaced the traditional books, subscriptions to databases afford medical faculty access to medical books electronically to meet their information needs." (ML001)*

Another verbatim analysis went thus;

> *"Sometimes they come to the library to meet their information needs and request to read newspapers. The medical faculty information needs are centred on the courses they are teaching and practical subjects. " (ML002)*

5.5.2 Meetings Where Medical Faculty Frequently Seek and Receive Information Guides

The respondents were asked in which meetings did they frequently seek and receive information. The results were shown in Table 5.4.

Table 5.4 Type of Meetings Where Medical Faculty Seek Information (N=162)

Items		Frequency (N)	Percent (%)
Type of meetings attended by medical faculty	Faculty board/departmental	106	65.4
	Seminar/Conference/ workshop	37	22.8
	Ward/Ground Round	16	9.9
	Others	2	1.2
	Total	**162**	**100.0**

Table 5.4 shows that faculty largely sought information from board/departmental meetings (106 (65.4%)), followed by seminar/conference/workshop (37 (22.8%)), ward/ground round (16 (9.9%)) and other meetings (2 (1.2%)). Respondents were free to choose more than one option. The results revealed that departmental meetings were mostly used by medical faculty to seek, and share information.

5.5.3 Frequency of Attendance at Meetings by Medical Faculty

The researcher sought to know the frequency of meetings attended by the medical faculty. Results are encapsulated in Table 5.5.

Table 5.5 Frequency of Attendance at Meetings by Medical Faculty (N=162)

Items		Frequency (N)	Percent (%)
Frequency of Meetings Attended by Medical Faculty	Once a month	48	29.6
	Fortnightly	55	34.0
	Daily	34	21.0
	Never	13	8.0
	Missing value	12	7.4
	Total	**162**	**100.0**

The results in Table 5.5 show that 55 (34%) of respondents attended meetings fortnightly, 48 (29.6%) attended meetings once in a month, and 13 (8%) never attended the meetings respectively.

5.5.4 Time Faculty Spent on Information Seeking

This section is about the amount of time faculty spent on information seeking. The results are shown in Table 5.6.

Table 5.6 Time Faculty Spent on Information Seeking (N=162)

Items		Frequency (N)	Percent (%)
Percentage of time spent on information seeking by Faculty	20%-40%	49	30.2
	41%-60%	62	38.3
	61%-80%	38	23.5
	81%-100%	10	6.2
	Missing value	3	1.9
	Total	**162**	**100.0**

The results revealed that the majority of respondents, 62 (38.3%), spent 41-60% of their time on information seeking; 49 (30.2%) spent 20-40% time seeking information; 38 (23.3) spent 61-80% on information seeking and only 10 (6.2%) spent 81-100% of their time in seeking information. The majority of the respondents as shown in Table 5.6 spent 41-60% of their time seeking information.

5.5 Preference for Information Sources among Medical Faculty

The study investigated the preferred information sources of the respondents from the selected tertiary health institutions library in Kwara State. Results in Table 5.7 indicate the preferred information sources by the medical faculty.

Table 5.7 Preferred Information Sources of Medical Faculty (N=162)

Items		Frequency (N)	Percent (%)
Sources of Inf. Faculty seeks in the library	Books	103	63.6
	Serials(Journal, Periodicals, M agazines and Newspapers)	38	23.5
	Internet	13	8.0
	Medical databases (Medline, Hinari e.t.c)	2	1.2
	Theses, research papers/ reports	2	1.2
	Others	4	2.5

The results show that respondents normally sought information in the library from books 103 (63.6%) and serials (journal, periodicals, magazines and newspapers) 38 (23.5%)). Information seeking from the Internet was undertaken by 13 (8.0%) respondents, medical databases (Medline, Hinari, and other databases) were consulted by 2 (1.2%) respondents, and theses, research papers and reports by 2 (1.2%) respondents and other sources by 4 (2.5%) respectively. Respondents were free to choose more than one option. The results showed that books were the most commonly preferred information sources by the faculty from their institutional library.

Analysis of qualitative data that books were the preferred sources of information of medical faculty as the medical libraries in the institutions mainly provides textbooks. A medical librarian in this regard noted that:

> *"The only information source we provide now is mainly textbooks and journals, but the medical faculty always complain that we need to improve by adding a range of other services they preferred such as electronic library services within the library." (ML002)*

5.6 Utilisation of Information in the Library by Medical Faculty (RQ3)

Research question 3 of this study (dealt in section 5.5) also sought to address utilisation of medical information for teaching, research and patients care. The results in Table 5.8 show the purpose and frequency of library and internet information utilisation by medical faculty for different purposes. Respondents were free to choose more than one option.

Table 5.8 Purpose and Frequency of Information Utilisation by Medical Faculty (N=162)

Purpose for which faculty utilised information	Never	Less frequently	Frequently	More frequently	Missing value
Utilisation of library for personal purposes (e.g. email and social networking)	61 (37.7%)	24 (14.8%)	31 (19.1%)	21 (13.0%)	25 (15.4%)
Utilisation of internet for personal purposes (e.g. email and social networking	3 (1.9%)	12 (7.4%)	50 (30.9%)	77 (47%)	22 (12.3%)
Utilisation of library to improve the teaching of students/ staff	28 (17.3%)	30 (18.5%)	56 (34.6%)	33 (20.4%)	15 (9.3%)
Utilisation of internet to improve teaching of students/ staff	16 (9.9%)	3 (1.9%)	41 (25.3%)	84 (51.9%)	18 (11.1%)
Utilisation of library to conduct research/report/article	28 (17.8%)	45 (27.8%)	36 (22.2%)	27 (16.7%)	26 (16.0%)
Utilisation of internet to conduct research/report/article	3 (1.9%)	13 (8.0%)	31 (19.1%)	85 (52.5%)	30 (18.5%)
Use of library to improve patients' outcome	22 (13.6%)	27 (16.7%)	26 (16.0%)	28 (17.3%)	59 (36.4%)
Use of internet to improve patients' outcome	16 (9.9%)	17 (10.5%)	43 (26.5%)	40 (24.7%)	46 (28.4%)
Utilisation of library for answering patients' queries	44 (27.2%)	23 (14.2%)	21 (13.0%)	18 (11.1%)	56 (34.6%)
Utilisation of internet for answering patients' queries	17 (10.5%)	26 (16.0%)	38 (23.5%)	29 (17.9%)	52 (32.1%)
Utilisation of library to keep up-to-date	20 (12.3%)	42 (25.9%)	38 (23.5%)	30 (18.5%)	32 (19.8%)
Utilisation of internet to keep up-to-date	3 (1.9%)	8 (4.9%)	33 (20.4%)	90 (55.5%)	28 (17.3%)
Utilisation of library for continuing education	34 (21.0%)	31 (19.1%)	31 (19.1%)	37 (22.8%)	29 (17.9%)
Utilisation of internet for continuing education	5 (3.1%)	9 (5.6%)	45 (27.8%)	76 (46.9%)	27 (16.7%)
Utilisation of library to answer colleagues' queries	32 (19.8%)	39 (12.3%)	31 (19.1%)	20 (12.3%)	40 (24.7%)
Utilisation of internet to answer colleagues' queries	5 (3.1%)	19 (11.7%)	45 (27.8%)	49 (30.2%)	44 (27.2%)
Utilisation of library for other purposes	10 (6.2%)	21 (13.0%)	12 (7.4%)	14 (8.6%)	105 (64.8%)
Utilisation of internet for other purposes	4 (2.5%)	13 (8.0%)	13 (8.0%)	24 (14.8%)	108 (66.7%)

Results in Table 5.8 show that 61 (37.75%) of respondents never utilised the library for personal purposes; while 31 (19.1%) frequently utilised the library for personal purposes. The results revealed that 77 (47%) respondents utilised the Internet more frequently for personal purposes (e.g. email and social networking) while 50 (30.9%) frequently utilised

the internet for personal purposes. Thus a higher percentage of respondents never used the library for personal purposes while a greater percentage of respondents frequently used the Internet for personal purposes.

Furthermore, 56 (34.6%) of respondents utilised the library to improve the teaching of students; 33 (20.4%) utilised the library more frequently to improve the teaching of students while 28 (17.3%) never utilised the library to improve the teaching of students. The results also show that 84 (51.9%) respondents utilised the internet more frequently and 16 (9.9%) never utilised the internet to improve the teaching of staff. Thus more respondents frequently utilised the library to teach students while more frequently used the Internet for the same purpose.

The results further show that medical faculty used the library for conducting research, writing reports and articles. About 45 (27.8%) respondents said they utilised the library less frequently while 36 (22.2%) utilised the library more frequently and 28 (17.8%) never utilised the library at all for conducting research, writing reports and articles. The results therefore reveal that majority of the respondents utilised the library less frequently.

The results also showed that 85 (52.5%) of respondents utilised the internet more frequently, and 3 (1.9%) respondents never utilised the internet for conducting research, writing reports and articles in the surveyed institutions. The result indicated that majority of the respondents' utilised internet more frequently for conducting research, writing reports and articles in the surveyed institutions.

The results indicated further that 28 (17.3%) utilised the library more frequently to improve patients outcomes and 22 (13.6%) never utilised the library to improve patients outcomes. The results also showed that 43 (26.5%) frequently utilised the internet to improve patients outcomes and 16 (9.9%) never utilised the internet to improve patients outcomes in pursuant of their job mandates. The results showed that majority of the respondents frequently utilised the library and the internet to improve patients' outcome.

The results in Table 5.8 also showed that 18 (11.1%) respondents utilised the library for answering patients' queries more frequently and 44 (27.2%) never utilised the library to answer patient queries. On the utilisation of internet to answer patients' queries, the results

revealed that 38 (23.5%) frequently utilised the internet; and 29 (17.9%) utilised the internet more frequently to answer patient's queries showing that the internet was the preferred source of information for answering patients' queries. A relatively large percentage of respondents did not answer this question (some 36% use the library and 32% use the internet).

The extent of respondents' utilisation of the library for keeping up-to-date revealed that 42 (25.9%) utilised the library less frequently, and 20 (12.3%) never utilised the library to keep up-to-date. As far as frequency of respondents' utilisation of the internet to keep up-to-date, was concerned, results show that 90 (55.5%) of the respondents utilised internet more frequently to keep up-to-date on their jobs with only 3 (1.9%) never utilising the internet to keep up-to-date showing that the internet was generally preferred to the physical source in the library.

The results further revealed that 37 (22.8%) respondents utilised the library more frequently and 34 (21.0%) never utilised the library for continuing education. Moreover, results further revealed that the majority of the respondents, 76 (46.9%), utilised the internet more frequently for their continuing education while 45 (27.8%) frequently utilised the internet for the same purpose. Majority of the respondents according to the results utilised library and the internet more frequently for continuing education.

Concerning medical faculty utilisation of the library to answer colleagues' queries, the results show that 39 (12.3%) respondents utilised the library less frequently to answer colleagues' query whereas 32 (19.8%) never utilised library to answer their colleagues' queries. Also, the results showed that the internet was more frequently utilised to answer colleagues queries by 49 (30.2%) respondents while 5 (3.1%) never utilised the internet to answer colleagues' queries. The results reveal that majority of the respondents utilised the library less frequently to answer colleagues queries while they also more frequently utilised internet to answer colleagues queries.

The results collected through interviews are as revealed by one respondent:

> *"The advent of online library services had eroded the frequency of medical faculty library visits but occasionally they do visit the library. From interaction with the faculty, they now access the library online and utilise its resources remotely."* (ML001)

Further the results indicated that:

"The medical faculty does visit the library frequently to utilise the information resources but the library opening hour is 8 am to 4 pm weekdays only while some medical faculty want to stay longer than that to study in the library." (ML002)

The result further revealed:

"The management should be encouraged to organise workshops on how to improve information utilisation and to share for the medical faculty in the college. We have done it once but it should be regular. The library should be added to the college website and the library resources should be linked online for the medical faculty to access remotely. The online library resource will stimulate networking and improved information sharing and utilisation among lecturers."
(ML002)

Overall, the results revealed varying reasons for faculty utilisation of information infrastructure in the institutions for different purposes

5.7 Modes of Information Sharing by Faculty to Support Job Roles (RQ3)

The results shown in Table 5.9 present modes of information sharing among medical faculty teams in the classroom, research clusters and during ground rounds while attending to the patients.

Table 5.9 Modes of Information Sharing Among Faculty (N=162)

Statement	Frequency (N)	Percentages (%)
Face to face	103	63.6
By office phone	2	1.2
By mobile phone	21	13.0
By email	15	9.3
By sending letter/notes	6	3.7
Conference/training workshops	9	5.6
Notice boards etc.	4	2.5
Missing value	2	1.2

The results reveal that the majority of respondents used face to face information sharing (103 (63.6%)); mobile phone was used by 21 (13.0%) respondents; email by 15 (9.3%) respondents , conference/training workshops by 9 (5.6%) respondents, and notice boards by 4 (2.2%) respondents to share information. The sharing of information by office phone recorded the least with 2 (1.2%) responses. Respondents were free to choose more than one option.

5.7.1 Reasons for Information Sharing among Medical Faculty

The respondents were further asked to state the reasons for sharing information and their responses are presented in Table 5.10 below.

Table 5.10 Reasons for Information Sharing among Medical Faculty (N=162)

Reasons for sharing information and or collaborating with colleagues		
Statement	Frequency (N)	Percentages (%)
To ask the second opinion	90	55.6
Discuss medical cases	30	18.5
Keep up with trends	24	14.8
Reasons for sharing information and or collaborating with colleagues		
Consult for practical knowledge	9	5.6
To give second opinion	2	1.2
Others	1	0.6
Missing value	6	3.7

The results reveal that respondents predominantly shared information when asking for a second opinion (90 (55.8%)), followed by discussing cases (30 (18.5%)), keeping up with trends (24 (14.8%)), consulting for practical knowledge (9 (5.6%)) and giving a second opinion (2 (1.2%)). Respondents were free to choose more than one option.

5.8. Sources and Tools Faculty Used to Access Information (RQ 4)

Research question 4 investigated what information sources available to the medical faculty in tertiary health institutions. To answer this, medical faculty were asked about the sources and tools they used in the library to access information resources; the resources they used most

often; frequency of use and frequency of visits to the library; internet usage. The results are presented in Tables 5.11-5.14. Respondents were free to choose more than one option.

5.8.1 Information Resources Used Most Often by Faculty (N=162)

The respondents were asked about the information resources they most often used while performing their roles in the tertiary health institutions in Kwara State. The institutional libraries, e-library/café, research libraries, public libraries and other libraries accessible to the faculty were the most used information resources.

Table 5.11 Information Resources Most Often Used by Faculty (N=162)

Information Resources most often used by medical faculty in the library		
Statement	**Frequency (N)**	**Percent (%)**
My institutional library	86	53.1
Institutional e-library/café	39	24.1
Research Library	7	4.3
Public library	10	6.2
Other library	15	9.3
Missing value	5	3.1

The results shown in Table 5.11 reveal that the majority of respondents used their institutional library (86 (53.1%)), institutional e-library/café (39 (24.1%)), public library (10 (6.2%)), research library (7 (4.3%)) and another library (15 (9.3%)) respectively. Respondents could choose more than one option.

The results show that the institutional library tops the information resources most used by the medical faculty.

Table 5.12 Tools Used to Access Information within the Library (N=162)

Tools used to access information sources		
Statement	**Frequency (N)**	**Percent (%)**
Library Catalogue	60	37.0
Indexing Journals	51	31.5
Bibliographies	6	3.7
Online public access catalogues in the library	29	17.9
Ask Librarians	12	7.4
Missing value	4	2.5

Results in Table 5.12 show that majority of medical faculty used the library catalogue (60 (37.0%)) followed by those who used indexing journals (51 (31.5%)), then those who used online catalogues (29 (17.9%)), those who asked librarians (12 (7.4%)) and those who used bibliographies (6 (3.7%)) to access information. The results revealed that the library catalogue was the most used tool for accessing information sources in the library while bibliographies were the least used tools.

Meanwhile, in-depth analysis of qualitative data corroborated data about the tools used to access information by the medical faculty. One head of the library pointed out:

> *"Catalogues, computers, internet and telephone are the major*
> *tools for accessing and using information in the University*
> *Ilorin." (ML001)*

5.8.2 Frequency of Respondents' Visits to the Library

Respondents were asked to state how often they visited the library. The results are captured in Table 5.13.

Table 5.13 Frequency of Respondents' Visits to the Library (N=162)

Faculty visits to the library		
Statement	**Frequency (N)**	**Percent (%)**
Daily	21	13.0
Once a week	32	19.8
Frequency of faculty visits to the library		
Once a month	8	4.9
Rarely	34	21.0
Regularly	61	37.7
Never	1	0.6
Missing	5	3.1
Total	**162**	**100.0**

The results reflected in Table 5.13 show that the majority of respondents visited the libraries regularly (61 (37.7%)), followed by rarely (34 (21.0%)), then once a month (21 (13.0%)); then daily (21 (13.0%)) and finally 1 (0.6%) respondent never visited the library to access information.

The results showed that 75.4% or respondents visited the library at varying levels of frequency; the majority of the participants visited the library regularly. One fifth of respondents said they rarely visited the library. One of the medical librarians confirmed that:

> *"The medical faculty does visit the library frequently to utilise the information resources but the library opening hours are 8 am to 4 pm weekdays only yet some medical faculty want to stay longer to study in the library." (ML 002)*

5.8.3 Medical Faculty Access and Use of Internet

The respondents were asked to state where they accessed and used the Internet.

Table 5.14 Medical Faculty Access and Use of the Internet (N=162)

Statement	Frequency (N)	Percent (%)
Do you use the Internet to access medical /health Information		
Yes	144	88.9
No	15	9.3
Missing value	3	1.9
Total	**162**	**100.0**
If yes, where do faculty access the internet?		
Institutional library	15	9.3
Faculty office	77	47.5
Other libraries	6	3.7
Home	12	7.4
Internet café	10	6.2
Personal computer/ modem	25	15.4
Missing value	17	10.5

The results reflected in Table 5.14 indicate that most respondents, 144 (88.9, used the internet while 15(9.3%) respondents indicated they did not use the internet to access medical/health information. Of those who used the internet, 77 (47.5%) accessed the internet in faculty offices, while 25 (15.4%) used personal computers either within offices or in their homes Furthermore, 15 (9.3%) respondents used the institutional library, while 12 (7.4%) accessed the internet from home; a small number used an internet café (10 (6.2%)) while 6 (3.7%) used the internet in other libraries.

The respondents confirmed the popularity of the internet for accessing information with the majority of the faculty saying they accessed the internet from their offices.

One medical librarian said, where internet service is yet to be deployed:

> *"The only information source we provide now is mainly textbooks and journals, but the medical faculty always complain that we need to improve by adding ranges of services like the electronic library services through the internet." (ML002)*

Another medical librarian observed:

> *"Currently the College of Medicine is being served with dedicated internet service with an IT officer in charge and the library services are available online. Apart from the ICT facility there is a*

The responses show that the medical faculty have extensively adopted the internet for accessing information to support their job roles.

5.9 Type of Library Information Services Provided to the Medical Faculty (RQ4)

Research question 4 also sought to know from the respondents the kinds of information services that were offered by the library to meet their information need. The results in Tables 5.15 reveal the type of information services provided to the medical faculty by the library. The respondents were free to choose more than one option.

Table 5.15 Type of Information Services Provided to Medical Faculty (N=162)

Statement	Frequency (N)	Percentage (%)
Reader services	52	32.1
Reference services	44	27.2
Lending services	16	9.9
Audiovisual services	19	11.7
Internet search services	7	4.3
Online databases services	4	2.5
Photocopying services	2	1.2
Others	13	8.0
Missing value	5	3.1

The results reveal that reader services were the most common services provided to medical faculty as expressed by 52 (32.1%) of respondents, reference services by 44 (27.2%), audiovisual services by 19 (11.7%), lending services by 16 (9.9%). Furthermore, results revealed that internet search services, online database services and photocopying services were other services provided to the medical faculty to a lesser degree.

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5.9.1 Skills Needed to Access Information Resources in the Library

The skills respondents needed to access information resources in the library were ascertained. The results in Table 5.16 show the skills faculty required to access information in the library. The respondent were at liberty to choose more than one option.

Table 5.16 Skills Needed to Access Information Resources in the Library (N=162)

Statement	Frequency (N)	Percentage (%)
Catalogue use skill	63	38.9
Classification uses skill	24	14.8
Accessing the databases	24	14.8
Computer literacy	18	11.1
Accessing the internet	14	8.6
Accessing the Medline materials	4	2.5
Missing value	15	9.3

Results reveal that the respondents mainly needed skills catalogue in using the catalogue (63 (38.9%)); classification skills (24 (14.8%)), accessing the databases skills (24 (14.8%)). Further, the results show that respondents required computer literacy skills (18 (11.1%)), Internet skills (14 (8.6%)) and skills for accessing the Medline materials (4 (2.5%)).

The results indicated that skill in using the cataloguing was the most needed skill to access information resources in the medical libraries.

5.10 Reasons for Which Medical Faculty Used Library Information Sources

The researcher also examined the reasons for which respondents used library information sources. Table 5.17 presents the reasons for which medical faculty used library information sources. The respondents were free to choose more than one option.

Table 5.18 Reasons for which Medical Faculty Used Information Sources (N=162)

Reasons	Frequency (N)	Percentage (%)
To record patient data (History, diagnosis, treatment and discharge)	51	31.5
For research	38	23.5
Write reports	26	16.0
Prepare for teaching students	15	9.3
To read patient health history	13	8.0
To follow-up patient progress	4	2.5
Prepare for meetings	2	1.2
Other	2	1.2
Missing value	11	6.8

The results show various reasons for using information sources that included recording patients' data (History, diagnosis, treatment and discharge) 51 (31.5%); for research 38 (23.5%) and writing reports 26 (16.0%); preparing for teaching students 15 (9.3%); reading patient health history 13 (8.0%); following up on patients' progress 4 (2.5%), preparing for meetings 2 (1.2%); and other reasons 2 (1.2%). The results show that the most common reason for the use of information sources by medical faculty was to record patient's data (History, diagnosis, treatment and discharge). Qualitative data analysis revealed that respondents attached great importance to information for supporting their job roles as revealed by the verbatim following statement:

> *"Information services are quintessential to the academic role of faculty*
> *in any university….if the library is bad the quality of teaching, research*
> *and patients care will be bad." (HD002)*

5.11 Faculty's Degree of Satisfaction with Information Use, Sharing and Collaboration

The respondents were asked to state the degree of their satisfaction with information they used, shared and for collaboration with colleagues within and outside their organisations. Presented in Table 5.19 below, are the results.

Table 5.19 Degree of Satisfaction with Information Use, Sharing and Collaboration

(N=162)

Statement	Not applicable	Dissatisfied	Neutral	Satisfied	Missing value
I am satisfied using diverse communication channels for information utilisation, sharing and collaboration	5 (3.1%)	37 (22.8%)	32 (19.8%)	82 (50.6%)	6 (3.7%)
I am satisfied with utilising information collaboration with colleagues within the institution	7 (4.3%)	35 (21.6%)	63 (38.9%)	48 (29.6%)	9 (5.6%)
I am satisfied with utilising information for collaboration with colleagues in other institutions	6 (3.7%)	37 (22.8%)	36 (22.2%)	77 (47.5%)	6 (3.7%)
Statement	Not applicable	Dissatisfied	Neutral	Satisfied	Missing value
I am satisfied with utilising information sharing with colleagues in the institution	3 (1.9%)	13 (8.0%)	75 (46.3%)	65 (40.0%)	6 (3.7%)
I am satisfied with sharing information with colleagues in other institutions	1 (0.6%)	12 (7.4%)	45 (27.8%)	97 (59.8%)	7 (4.3%)

In terms of the respondents' degree of satisfaction in the overall with information, results reveal that 82 (50.6%) respondents were satisfied, 37 (22.8%) were dissatisfied and 32 (19.8%) respondents were neutral with diverse they accessed. The results further showed 63 (38.8%) respondents were neutral, 48 (29.6%) were satisfied and 35 (21.6%) were dissatisfied with information they accessed for collaboration with colleagues. Furthermore,

77 (47.5%) respondents were satisfied, 37 (22.8%) dissatisfied and 36 (22.8%) were neutral with their use of information.

The results further suggest that 75 (46.3%) respondents were neutral, 65 (40.0%) were satisfied and 13 (18.0%) were dissatisfied with the information they shared with colleagues in other institutions. The results therefore reveal that majority of the medical agreed that they were satisfied with the information they accessed and shared with colleagues.

5.12 Problems Encountered by Medical Faculty in Seeking, Sharing and Utilising Information (RQ5)

The respondents were asked to state the problems they confronted while seeking, utilising and sharing of information. The results are present in Table 5.20.

Table 5.20 Problems Faced by Faculty While Seeking, Sharing and Utilising Medical Information (N=162)

Statement		Frequency (N)	Percentage (%)
Faculty's problems while seeking, sharing and utilising medical information	Library not available in faculty institution	20	12.3
	Library available in faculty's institution but remotely located	21	13.0
	Inadequate resources in the institutional library	67	41.4
	Lack of information technology such as phone, the internet, email, facility to share/ collaborate with colleagues	5	3.1
	Lack of time	28	17.3
	Too much information on the internet	4	2.5
	High cost of journal subscription	8	4.9
	Inadequate financial supports from employer	2	1.2
	Lack of skill to share/collaborate	1	0.6
	Others	4	2.5
	Missing value	2	1.2
Does faculty agree that the problems above have affected their professional performance	Strongly agree	28	17.3
	Agree	67	41.4
	Disagree	41	25.3
	Strongly disagree	12	7.4
	Missing value	14	8.6

The result indicated that inadequate resources in the institutional library by 67 (41.4%) respondents was the biggest problem faculty faced in terms of seeking, sharing and utilising medical information, whilst 28 (17.3) respondents reported a lack of time and 4 (2.5%) stated there was too much information on the internet. Also, 8 (4.9%) respondents cited the

high cost of journal subscriptions, 2 (1.2%) cited inadequate financial support from employer and 1 (0.6%) pointed out the lack of skill to share and collaborate respectively. The results also show that 67 (41.4%) respondents agreed and 28 (17.3%) of respondents strongly agreed that these problems had affected their professional performance. Another 41 (25%) disagreed that the problems had affected their professional performance.

Overall the results showed that most of the respondents agreed that inadequate resources in the institutional library were the major problem hampering their information seeking, utilisation, sharing and collaboration in the tertiary health institutions. These results were supported by those obtained from interviews with heads of institutions surveyed. One respondent had this to say:

> *"Well, we face challenges of the poor and slow internet, space in the library and erratic power supply and we are doing our best to eliminate those challenges as far as we can. The problem of manpower is also there because the library is not a 24-hour library; we need the library opening hours to be extended. The library needs an uninterrupted power supply with a dedicated alternative power source and the sitting capacity to be extended too. We need a video-conferencing and research commons where discussion can take place without disturbing other users that are not involved in the discussion." (HI001)*

Another respondent added:

> *"Apart from the normal budget constraint, space is the major problem of the medical library in this institution. Also, funding is another major constraint affecting our operations." (HI002)*

Furthermore, a medical librarian noted:

> *"Our collections are still small compared to the number of medical faculty we are serving; the library space is also small and located in a space where we have constant noise coming from outside. Moreover, some of our books are dated and when the medical*

5.13 Suggested Solutions to Challenges Facing Medical Faculty in Seeking, Using and Sharing Information (N=162)

In addressing the challenges identified above, the results in Table 5.21 show a range of solutions offered.

Table 5.21 Proposed Solutions to Challenges Facing Medical Faculty in Seeking, Using and Sharing Information (N=162)

Proposed solutions to challenges	Frequency	Percentage
Provide qualified librarians	72	44.4
Provide information searching training for the staff	43	26.5
Digitise all information resources in the institution for easy access	17	10.5
Improve collaboration with other institutions	11	6.8
Improve information sharing among colleagues within and outside the institution	4	2.5
Improve budget for the collection of information resources	10	6.2
Missing value	3	1.9

The suggested solutions included the need to provide qualified staff 72 (44.4%); proposed information searching training 43 (26.5%); digitisation of all information resources in the institutions for easy access 7 (10.5%); increasing budget for the collection of information resources 10 (6.2%) and improved information sharing with colleagues within and outside their institutions 5 (2.5%).

 The responses obtained from the interviews with the medical librarians on how the challenges facing libraries could be addressed supported the results from the questionnaires. In this regard, one medical librarian had this to propose:

> *"More funding should be made available to the library to meet the increasing information demands of the medical faculty. The statutory budget allocation should be paid directly to the medical library account with medical librarian having the independence of spending it to meet the demand for information by the medical faculty." (HD002)*

Another medical librarian asserted:

> *"We can only overcome the information provision challenges only when we have information infrastructures like the library and the internet services." (ML001)*

> The other verbatim responses are reflected below on how the challenges facing medical libraries could be addressed:

> *More library sections need to be created such as reference and reserve units to allow rare information resources to be more readily available in the medical library. . I want to see the library subscribing to more current journals and recently published books. If it is possible, the internet access should be extended to various parts of the community so that faculty can access the WiFi services in their homes because you may need to work from home without necessarily coming to the office." (HI001)*

> *The medical library must subscribe to many more databases that are critical. In addition, the library space must be developed to accommodate more patrons' particularly senior medical faculty like professors; it must be attractive enough for people to go there and sit down to do their research. The library opening hours must be flexible to reflect the research standing of the medical school, where the medical faculty can walk in and work round the clock." (HI002)*

5.14 Summary

The chapter presented findings on the information behaviour of faculty in the selected tertiary health institutions in Kwara State Nigeria, obtained through the administration of a questionnaire and interviews (see Appendices 3, 4 and 5 respectively). The main study was preceded by a pilot (see Chapter Four) where the results of EFA showed that the observed variables in the research instruments were valid and reliable.

Demographic results showed that there were more male respondents than female respondents. Moreover, respondents in the age range of 31-40 years were in the majority with 61-70 years participants being in the minority. The common educational qualification obtained was the BSc degree among the medical faculty. The College of Health Sciences, University of Ilorin recorded the highest number of participants in the research. Findings showed that the majority of respondents were from Nursing Services and were employed on a full-time basis. There were more consultants among the respondents than any other job title, and the majority of respondents had 6-10-years of post-qualification experience and had spent between 1-5 years in their current institutions of affiliation.

Results on the information needs, information seeking and use by medical faculty revealed that information needs for improving teaching roles were prominent among the majority of the participants. The findings on ways through which faculty expresses information needs, reveal that the majority of the respondents asked for assistance from senior staff. Qualitative data showed that computers had modified ways through which faculty expressed and met their information needs.

Another variable investigated in this study was information sources availability and preference by the medical faculty. The results revealed faculty preference for books among available information sources in the library 103 (63.6%) and serials (journal, periodicals, magazines and newspapers) 38 (23.5%). The internet was preferred by 13 (8.0%) respondents, medical databases (Medline, Hinari, and other databases) by 2 (1.2%) respondents; theses, research papers and reports by 2 (1.2%) and other sources by 4 (2.5%) respondents. The results of investigation revealed that the majority of respondents received help in finding information sources most frequently, fortnightly, through faculty board and departmental meetings. The results further revealed that medical faculty spent 41%-60% of their time seeking information from a variety of sources. The results on information services provided by the library to medical faculty indicated that reader services were the most popular information service provided by the faculty's institutional library. Skill in catalogue use was the skill most desired by medical faculty. Results showed that faculty mostly shared information face to face. Concerning reasons for sharing information, results showed this was usually to ask for a second opinion in their job roles. Frequencies of information utilisation by medical faculty, from the results, showed that respondents frequently utilised the internet and library resources to improve their job roles.

As far as tools that medical faculty used to access information were concerned, the catalogue was the most utilised tool in the library by the majority of respondents in their institutional library. The study also revealed that the reason for the majority of medical faculty's use of information was to record patient's data such as medical history, diagnosis, treatment and discharge of patients. Results showed that participants strongly agreed that they were aware of information technologies for sharing information and they agreed that they were aware of contemporary developments in the profession. Participants, according to the results, were satisfied with the degree to which they utilised communication channels for sharing information and collaborating with colleagues in their institution and other institutions.

The major problems that medical faculty faced while seeking, sharing and utilising medical information included inadequate resources in the institutional library, library opening hours, lack of time, high cost of journal subscriptions and the remote location of the institutional library. The participants also adjudged that these challenges have affected the performance of their job roles.

The respondents suggested that possible solutions to problems of sharing, collaborating and utilising information could be employing more qualified library staff; information searching training for the faculty staff; digitisation of information resources for easy access; improved budget for the library and other information infrastructure.

5.15 Summary of the chapter

Chapter five presented the findings and their basic analysis derived from the data collection instruments. The discussion covered the introduction, response rate, demographic information of respondents that touched on gender, age, educational qualification and institutions where respondents work. Other demographic information of respondents revealed job status, departments employed in, job title, post qualification experience, years of experience in the institutions and roles of respondents.

Additional data analysis and interpretation of findings included participants' information needs, meetings where faculty frequently seek and receive information guidance, time faculty spend on seeking information and preferred information seeking sources of participants. The discussion in this chapter also included respondents' utilisation of information, modes of information by the faculty and reasons for information sharing among participants. Further

results revealed the ways through which the respondents express their information needs using the library and other information access. Other results are concerned with tools used to access information, information resources used most often, the frequency of faculty visits to the library, access and use of the library. The analysis and interpretation of findings also covered types of information provided in the institutions, skills require to access and use information and reasons why respondents used information sources. The discussion further includes the degree of satisfaction with information utilisation, sharing and collaboration among the respondents.

Finally, the chapter touched on problems encountered by medical faculty while seeking, sharing and utilising medical information and suggested solutions.

CHAPTER SIX

DISCUSSION OF FINDINGS

6.1 Introduction

The purpose of the discussion of findings chapter in a doctoral thesis is to collate the research findings and demonstrate the researchers' ability to think critically about issues for advancing creative solutions to the research problems (Aitchison, 2010; Cotterall, 2011; Paltridge and Starfield, 2007).

The purpose of this study was to investigate the information behaviour of the medical faculty in three selected tertiary health institutions in Kwara State, Nigeria. The study examined the following research questions:

1) What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria?

2) How do medical faculty express their information needs in meeting their job-related roles in tertiary health institutions?

3) How do medical faculty in tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care?

4) What are the information sources available to the medical faculty in tertiary health institutions?

5) What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how do they overcome these problems?

The theoretical models of Wilson (1994) and Leckie, Pettigrew and Sylvain (1996) underpinned this study. The findings of this study was guided by the research questions that revealed the participants' demographic data that included details such as gender, age and highest educational qualification, the institution of faculty, job status and academic departments of the participants. Additional findings show job title, post qualification experience and years of experience of respondents. Further findings reveal information needs, information seeking and expression by medical faculty (covered by research questions 1-3); sharing and utilisation of information sources by medical faculty (covered by research question 4); information sources and tools used for information access, awareness of new information technology by medical faculty, satisfaction of medical faculty with various

information sources access, etc (covered by question 4) and problems of providing, seeking, sharing and utilising information by medical faculty and the amelioration strategies of these problems (covered in research question 5).

6.2 Demographic Data of Participants

Demographic information involves personal characteristics of respondents in a piece of research and various particulars of the individual in a study. It assists in developing appropriate strategies for the target population for measuring the adopted research variables. Demographic information consists characteristics of a population relating to age, sex, marital status, occupation, ethnicity, etc. (Brink *et al.,* 2012). The current study asked the respondents to provide demographic information about their gender, age, qualifications, rank, job status and institutional affiliations.

6.2.1 Gender Distribution of Faculty

Findings indicated that 99 (61.1%) of medical faculty were male while their female counterparts numbered 63 (38.9%) in the selected tertiary health institutions surveyed. The findings showed that there were far more male faculty than female medical faculty in the institutions studied. Similarly, (Abbas, Abubakar, Omeiza, and Minoza, 2013; Makama, Garba, and Ameh, 2012) in a cross-sectional study of representation of women in surgery in Nigeria revealed that rigorous requirements of training and practice of surgery deterred female doctors' from choosing and sustaining a surgical career. Reichenbach (2007) also explored the gender dimension in a healthcare workforce and found less female medical faculty in the participating institutions than their male counterparts. Frenk Chen, Bhutta, Cohen, Crisp, Evans and Zurayk (2010) acknowledged the difficulties faced by female physicians and nurses working in remote regions. They revealed that female faculty's family commitments and security considerations dissuaded them from taking up medical jobs in remote parts of the country. Shabi, Shabi, Akewukereke, and Udofia (2011) indicated that among clinical faculty promoted from Assistant Professor to Associate Professor, females were 31.9% less likely to gain promotion than male faculty in Nigeria. It would seem the challenges facing female medical faculty are not only confined to developing countries such as Nigeria. Pololi, Krupat, Civian, Ash, and Brennan (2012) asserted that it is more difficult for female faculty to advance in their careers than males among the full-time faculty in United States medical schools. The study concluded that institutions support women in achieving leadership and provide equal promotional opportunities to women and men.

6.2.2 Age Distribution among Faculty

Age distribution among the medical faculty showed that majority of respondents were in the age bracket of 31-40 years numbered 58 (35.8%) while the least number of participants were in the age range of 61-70, numbering only 2 (1.2%). The findings suggest that more faculty were in their prime age while the few who were senior faculty were nearing retirement. Brew (2003) found that the majority of academics were people in their prime age and were adjudged to be productive and active for the rigorous demands of academic, research and community activities. Another large-scale survey of over 5,500 academics across 19 Australian universities explored among other things the age distribution of faculty and found that the aging academic workforce was a great challenge (Bexley, Arkoudis, and James, 2013). The findings further revealed that there was a concentration of academics in the age range of 30-49 years. This cadre of academics was employed in the lower ranks of academia despite the fact that they were more productive. Saint, Hartnett and Strassner (2003), in a status report on higher education in Nigeria therefore make case for the higher institutions especially in developing countries such as Nigeria to provide practical interventions to deal with the problem of faculty that are advanced in age.

6.2.3 Respondents' Highest Educational Qualification

The distribution of respondents' highest educational qualification indicated that 40 (24.7%) participants hold B.Sc. degrees and 38 (23.5%) were master's degree holders in the tertiary health institutions in Kwara State surveyed. The results revealed that respondents were academically prepared to face the arduous tasks of teaching, research and patient care, the core mandates of the tertiary health institutions. Andualem, Kebede and Kumie (2013) pointed out that medical personnel are trained at the Baccalaureate (B.Sc.) level in order to provide support to healthcare system. Sullivan (2008) stressed that policy review of the junior clinical faculty in the United Kingdom was needed to facilitate their progression to the higher academic levels. This finding seems to suggest that just as in Nigeria, the UK has a concentration of academics in medicine in junior ranks because of their academic qualifications.

6.2.4 Distribution of Faculty by Institution of Affiliation

Tertiary health institutions, where the respondents work, reflected the following affiliations. The University of Ilorin College of Health Sciences employs 85 (52.5%) of the participants in the study; Kwara State College of Nursing and Midwifery (CONM), Ilorin has 46 (28.4) of

the participants and 31 (19.1%) respondents were from Kwara State Specialist Hospital Sobi, Ilorin (SSH). The findings pointed to the fact that universities remain the hub for the training of middle-level manpower in health care in Kwara State. Mullan, Frehywot, Omaswa, Buch, Chen, Greysen and Boelen (2011) found that the importance of medical education offerings within the universities was because such institutions were integral to human resource plans and development of any country. Hoyler, Finlayson, McClain, Meara, and Hagander (2014) found that the global academic medical workforce is concentrated in universities. Komolafe-Opadeji (2011) emphasised the need to strengthen the health system workforce in medical education at all levels in Nigeria.

6.2.5 Job Status of Faculty

Job status among healthcare educators in the participating tertiary health institutions revealed that 147 (90.7%) of medical faculty were in full-time positions. Olasoji (2014) observed that medical education in Nigeria has a workforce that operates in a unique environment that requires full time employment. AbuAlRub, Gharaibeh and Bashayreh (2012) also found that the majority (89.5%) of nurses in Jordanian hospitals work on a full-time basis. In contrast, Bexley *et al.* (2013) in Australia found that there was increased casualization of traditional work roles of the medical academics.

6.2.6 Distribution of Faculty by Departments of Affiliation

The distribution of faculty by departments of affiliation revealed that Nursing Services departments employed 47 (29.0%) of the participants, Behavioural Sciences 21 (13.0%), Anatomy 20 (12.3%), and other departments 19 (11.8%) of medical faculty. The finding confirms that the Nursing Services department had more personnel and support healthcare more than any other medical department in the tertiary institutions surveyed. Draper, Felland, Liebhaber, and Melichar (2008) asserted that nurses were key caregivers in hospitals with influence on the quality of care and treatment for patient outcomes. In Nigeria's healthcare sector, nurses are the frontline staff whom patients mostly contact to access healthcare. Chinweuba (2007) posits that nurse educators in Nigerian tertiary health institutions should therefore be supported with adequate teaching facilities for increased productivity.

6.2.7 Distribution of Respondents by Job Title

Findings revealed that 31 (19.1%) respondents were Consultants and 26 (16.4%) were Lecturers in Grade I; respondents at Senior Lecturer numbered 22 (13.8%); Matrons

numbered 20 (12.3%); Fellows 16 (9.8%); Registrar 11 (6.8%); Professors 10 (6.2%), other 10(6.2%); Senior Specialists 2 (1.2%); Specialists 2 (1.2%); and Senior Matrons 1 (0.6%). Consultants that form the majority of the respondents are usually specialists in the narrow area of academic research, and they also possess qualifications that assist them to provide academic leadership in the tertiary institutions. Pratt, Rockmann, and Kaufmann (2006) pointed out that academic medical consultants face job challenges that include high patient numbers and critical clinical decision-making in the discharge of their roles as faculty.

In Nigeria, consultants face the herculean task of managing patient from diverse backgrounds and ailments. Nwezeh, Shabi, and Shabi (2011) indicated that consultants at Obafemi Awolowo University Teaching Hospital represented the core leadership in teaching, research and patient care as their post qualifications and experience task them for these academic mandates.

6.2.8 Post Qualification and Years of Experience of Faculty

Post qualification experiences of respondents reflected in years of experience among the medical faculty in the present study indicated that 40 (24.7%) participants had 6-10 years post-qualification experience and 39 (24.1%) respondents had 1-5 years of post-qualification experience respectively. Additionally, 30 (18.5%) respondents had 20 years and above post-qualification experience, while respondents with below 1 year experience numbered 19 (11.7%), and 9 (5.6%) respondents had 16-20 years of post-qualification experience in the institutions. The results revealed moderate retention of experienced medical faculty in the tertiary health institutions in Kwara State. The findings seem to suggest that organisational support and culture were the reasons for retention and promotion of faculty in the tertiary health institutions in Kwara State, Nigeria. Palepu, Carr, Friedman, Ash, and Moskowitz (2000) in a study of career experiences of underrepresented minority among medical faculty in the United States of America over the past 10 years, found that recruitment and retention of junior faculty had increased for early and middle career faculty. Samuel and Chipunza (2013) revealed that there is demand for senior academic staff in South Africa higher education and the trend is expected to continue. Meanwhile, Burdick, Diserens, Friedman, Morahan, Kalishman, Eklund and Norcini (2010) enumerated the challenges facing health professional education in Africa to include selection and faculty recruitment, retention, and lack of standardized medical education.

6.2.9 Roles Performed by Medical Librarians

Medical librarians in Nigeria's tertiary health institutions enjoy faculty status. The findings indicate that the roles of medical librarians were in the areas of supporting academic activities of the tertiary health institutions. They also performed high level administrative and academic functions. Cooper and Crum (2013) described the emerging roles of the medical librarian as reflected in new nomenclatures such as: clinical librarian, instruction librarian, outreach librarian, and consumer health librarian. The changing nature of academic libraries is exposing the librarians to more challenging tasks. Therefore, there is a need for them to be trained to meet the expectations of faculty and other communities of academic users in the tertiary health institutions. Despite the creation of new medical librarian positions and nomenclatures, the study concluded that the traditional purpose of health sciences librarianship in Nigeria remains unchanged. The new roles of the medical librarian in Nigerian tertiary health institutions embodies new activities to support the needed information services of the medical academic communities. Mi (2015) averred that the role of academic libraries is changing and focusing more on users rather than the collection of information necessitating the hitherto roles of academic librarians. Consequently, Brettle, Maden-Jenkins, Anderson, McNally, Pratchett, Tancock and Webb (2011) suggest the need for medical librarians to be well prepared to provide evidence for specific impacts of their work on patient care the medical faculty. The new roles of medical librarians according to Salunhke and Pange (2013) require added academic qualifications to maintain the standard required for tertiary health institutions.

6.3 Information Needs of Medical Faculty

Results of the study indicate that information needs for improving teaching roles as stated by 106 (65.4%) of the respondents was the chief reason for medical faculty requiring information; along with requiring information for research engagements recorded by 23 (14.2%) respondents, patient outcomes 11 (6.8%) writing research papers/publication 8 (4.9%), and keeping up-to-date professionally, 7 (4.3%) respondents respectively. These findings were in contrast to Gatero (2010) who found that clinician's information needs to be the most frequent need in a university-based general medicine service in Kenya. The study found that clinician requests for information included patient information and medical knowledge. The findings further revealed that information needs of clinicians were related to their role in patient care. Woertman, de Hoop, Moerbeek, Zuidema, Gerritsen and Teerenstra (2013) examined the comprehensive information behaviour of faculty and concluded that

information need was not a fundamental human need such as the needs for sustenance and also that personal or group interest informed their information needs. The conclusion is divergent to situations with medical faculty whose core academic mandates is contingent on information needs that must be accurate, current and timeous.

Likewise, Younger (2010) in a quantitative study on the information needs of medical researchers found that information needs of medical faculty revolved around teaching, administration; research administration and patient's administration. The study also showed that the faculty's information needs varied with the job mandates. A study that investigated medical faculty information needs at the University of Tennessee Health Science Centre (UTHSC) in the US showed that medical faculty required journal articles to verify information in order to save them time due to a journal's convenience and currency of information. The study suggested that librarians and publishers must find ways to provide convenient and current information to match the information needs of medical faculty.

Perversely, Watts and Ibegbulam (2006) found that meeting information needs of faculty was hampered by inadequacy of IT infrastructure at the University of Lagos Nigeria. The finding revealed dependence of research scholars on electronic resources because they provided theoretical efficiency over conventional sources of information. Although the study explored information needs of faculty generically it is prudent to conclude that since medical faculty share roles especially teaching and research, these would equally apply to medical faculty. Marshall, West, and Aitken (2011) investigated the information needs of Ethiopian health professionals using cross-sectional quantitative and qualitative approaches. The study found that the chief determinant of information needs of healthcare professionals was generic irrespective of the organisation they worked for.

Another study by Adio, Akewukereke, and Ibitoye (2007) examined the effectiveness of library service and resources at Ladoke Akintola University, Nigeria, in meeting the information needs of users. The randomly administered questionnaire to users revealed inadequacies that emanated from a shortfall in acquisitions which affected the capacity of the library to meet the information needs of the users.

Bannet (1998), in a study on the information needs of lawyers in London found that the nature of practice and experience influenced their information needs. The more experienced lawyers were the more independent in seeking information needs than their junior counterparts. These results are in contrast to the findings on medical faculty in tertiary health

institutions in Kwara State in Nigeria which revealed that no relationship existed between the information needs of junior and senior faculty. However, it must be pointed out that reliance on a semi-structured interview for data collection may have some bias because the participants may be inclined to respond in a manner that pleases the interviewer. Haruna and Mabawonku (2001) examined the information needs and seeking behaviour of lawyers in Lagos, Nigeria and found that respondents indicated that lawyers relied on superior courts to obtain information for their professional development. This finding with the lawyers resonates with the medical faculty where junior colleagues consulted senior colleagues for their information needs to help in their job roles.

DeRosa (2013) surveyed the hospital staff information needs and preferred sources in a Greek cancer hospital and found that medical staff had extensive and complex information needs for fulfilling their daily routines and job roles as researchers and caregivers. The finding further revealed that medical librarians working in this hospital often had to adapt their information needs to the hospital information environment and for this reason their information needs were not exactly matched with the information available to them in the hospital. Kostagiolas, Souliotis, and Boskou (2014) studied olive oil producers in the agricultural sector and how information technologies and the internet influenced their information needs, preferred information sources and obstacles they faced in seeking information. The findings revealed that their information needs centered on how to create a new global business agricultural production modelling the agricultural sector. The findings revealed the need for creating unlimited business space to improve olive oil production by breaking the barriers that hampered their quest for information.

Fraire (2013) identified the range of information needs of researchers and concluded that the researcher's information need was to locate information in their research areas, to keep abreast with trends in their research as areas and to also find research funding sources. Oduwole (1999) examined the impact of the library on the clinical decision making in two Nigerian University hospitals and found that medics relied mostly on the library and personal collections for information to assist them in managing patients, evaluating drugs and diagnosis of patient ailments. The findings further showed that the clinicians relied on the library to meet the needs of their job roles. Moreover, the results showed that the way clinicians expressed their information needs depended on how they perceived the library in terms of the information resources they had and quality of library staff.

At the University of Zimbabwe, Chikonzo and Aina (2001) surveyed veterinary researcher's information needs using the open and close ended questions to record the opinion of users. The study found that veterinary staff information needs were concerned with finding new topics when preparing lecture notes, conference papers, career development path, developing proposals, manuscripts, writing papers for publications, identifying parasites and when sourcing research funding. The study brought a new dimension to information needs of faculty on specific issues like new topics and support for career progression.

However, the current study on information needs of medical faculty in tertiary health institutions in Nigeria revealed that many factors such as demographic, psychological, job roles, academic position and environmental factors influenced the way medical faculty sought information.

6.4 Information Needs, Access to and Preferred Sources of Information

This section focuses on the discussion of findings relating to information needs, and preferred sources of information for medical faculty.

6.4.1 Ways through Which Respondents Express Their Information Needs

The findings revealed that medical faculty expressed information needs mainly by asking senior colleagues (87 (53.7%)); consulting institutional library collections (22 (13.6%)); asking other colleagues (13 (8%)) and consultation with department/unit collections (2 (1.2%)). The medical faculty also sought information through searching the internet 33 (20.4%)) and 4 (2.5%) consulted personal collections such as books, journals and reports while 1 (0.6%) expressed information needs by consulting other sources. Nnadozie and Nnadozie (2008) found that the way faculty in Nigerian private universities expressed their information needs was influenced by their perception of what journals and other relevant materials were available in the library and job roles. This result is similar to the current study which revealed that information needs of medical faculty were influenced by their job roles of teaching, research and patient care. Smith (1996) opined that information needs of medical faculty are much more about patient care but extend to filling the medical knowledge gap for teaching or research. Smith pointed out that doctors in the course of patient care rely on other doctors for prompt answers and do not necessarily rely on senior colleagues contrary to the finding of this study.

Niu and Hemminger (2012), in an exploratory analysis of academic scientists engaged in scholarly information searching, identified the linkages between contextual factors and

information searching and use behaviors. The findings revealed that personal attributes and environment where academic scientists operate influenced the way academics expressed their information needs for performing their job roles. The findings showed individual behaviour and the work environment as the most significant factors influencing information expression. They also found that the academic library and colleagues were not necessarily the first place of call when scientists sought information. However, the findings revealed that the faculty resorted to senior colleagues for their information expression because of the proximity and trust.

6.4.2 Frequency of Accessing Information and Preferred Sources of Information

The findings revealed time spent on information seeking as follows: 62 (38.3%) respondents spent 41-60% of their time seeking information; 49 (30.2%) spent 20-40% of their time in information seeking; 38 (23.3%) spent 61-80% of their time on information seeking; and 10 (6.2%) spent 81-100% of their time in seeking information. The results indicate that the majority of faculty spent 41-60% of their time in seeking information. Bhatti (2013) found that faculty in thirteen departments of the Faculty of Social Sciences at Bahauddin Zakariya University (BZU) Multan, Pakistan, spent more than 15 hours weekly on seeking and receiving information from home and departmental libraries. The findings showed that faculty in the study spent more time seeking information from their homes and departmental libraries. Ramos, Linscheld and Schafer (2003) submit that experience influences the time faculty spent on information seeking.

The findings further revealed that medical faculty generally sought information fortnightly from faculty board and departmental meetings about their job roles and relied on the institutional library for books to meet their needs. The results of the qualitative part of the study revealed that medical faculty preferred other sources of information that were not currently available in the tertiary health institutional libraries. The findings also revealed that sources of information and the services available in the institutional libraries did not adequately meet the information needs of the medical faculty.

Al-Suqri (2011) explored the information behaviour of social science scholars in developing countries and found that respondents relied on personal collections and the advice of colleagues when seeking information. The study revealed that respondents used alternative sources of information due to the non-availability of the information resources in their institutional library.

The findings on the preferred information sources of information revealed that 103 (63.6%) respondents preferred books, 38 (23.5%) preferred serials (journals, magazines and newspapers), 13 (8.0%) preferred the internet. Other preferred sources of information included medical databases (Medline, Hinari, and other databases), theses, research papers and reports. Books were the common information source consulted by the medical faculty. Siamian, Yaminfirooz, Dehghan, and Shahrabi (2013) conducted a descriptive and analytical survey of faculty members' information gathering at Babol University of Medical Sciences in Iran. The study found that half of the information sources preferred by faculty members were printed books as opposed to electronic resources. This was attributed to the low speed of internet service that made it difficult to access electronic resources. Despite the preference of books by medical faculty there are several information sources that can be used by healthcare professional to address their information needs (Iyer, 2011).

The dependence on books by medical faculty as the preferred sources of information could also be attributed to inadequate information literacy skills among the respondents. This was exacerbated by non-inclusion of information literacy instruction in medical education in the tertiary health institutions that were studied. Badia (2013) opined that it is the responsibility of both faculty and librarians to deliver information literacy in medical education given the convergence of librarian and faculty roles in medical education. Medical information literacy is a lifelong experience that can assist medical faculty to make informed choices about information sources and use.

Bernard, Arnould, Saint-Lary, Duhot and Hebbrecht (2012) described the characteristics of French GPs medical information needs and how they mainly preferred to seek information through sources like the internet. The findings revealed varying barriers to information preference including lack of time, language barrier, information overload, relationship with patients and lack of financial recognition. Agba and Ushie (2013) examined the upward review of medical staff wages in Nigeria as a financial recognition. In their opinion, financial recognition can affect information behaviour of medical staff in the performance of their job roles; better purchasing power to subscribe to the needed local and foreign journals was needed.

Previous studies show that reliance on colleagues was the most highly ranked information source preferred by general medical practitioners (McGettingan, Golden, Fryer, Chan and

Feely, 2001; Dorsch, 2000; Connelly, Rich, Curley and Kelly, 1990; Williamson, German, Weiss, Skinner and Bowes, 1989).

6.5 Utilisation of Information by Medical Faculty

The findings on utilisation of information among medical faculty revealed that 61 (37.7%) participants never used the library for personal purposes; 77 (47%) participants used the internet more frequently for personal purposes while 56 (34.6%) utilised library resources to improve their teaching roles. Another finding indicated that 84 (51.9%) of respondents utilised the internet to improve teaching, 45 (27.8%) utilised the library to conduct research and 85 (52.5%) utilised the internet to conduct research. Furthermore, the findings revealed that 27 (16.7%) respondents used the library to improve patients' outcomes less frequently and 43 (26.5%) used of the internet to improve patients' outcome more frequently. With regard to the use of the library to answer patient queries, the findings revealed that 44 (27.2%) respondents never used the library to respond to patient queries and 38 (23.5%) used the internet to respond to patients' queries. The findings further revealed that 42 (25.9%) respondents used the library to keep up-to-date less frequently, and 90 (55.5%) more frequently used the internet to keep up-to-date.

The findings also showed that the medical faculty utilised the library for continuing education with 37 (22.8%) participants utilising library more frequently for continuing education and 76 (46.9%) used the internet for continuing education more frequently. Likewise the use of the library for answering colleagues' queries showed that 39 (12.3%) of respondents less frequently used the internet for answering colleagues' queries, while 49 (30.2%) used the internet more frequently to answer colleagues queries. In addition, the findings revealed that 21 (13.0%) respondents used the library for other academic purposes while 24 (14.8%) used the internet more frequently for other academic purposes.

The findings on the whole revealed that library use and the use of the internet by the respondents were significant resources for accessing information to perform their job roles effectively. The findings showed that besides seeking information to support their faculty job roles of teaching, research and patient care, they also utilised information to keep up-to-date, for continuing education, for answering colleague's queries and for other purposes. The multi-faceted roles of faculty in the tertiary health institutions are unique and differ from roles performed by other healthcare professionals. In this regard, Grady, Dracup, Kennedy, Moser, Piano, Stevenson and Young (2000) found that physicians, nurses, dietitians and

pharmacists utilised information to advance their practice. Yusuf (2005), in an investigation of the extent of the accessibility and utilisation of electronic resources by academic staff at two Nigerian universities, found that accessibility and utilisation of electronic resources among academics in Nigeria contributed to performance in their job roles. The findings in the current study of information behavior of medical faculty revealed that information in varying formats influenced its utilisation by medical faculty.

Yakubu and Olatoye (2015) found that academics in tertiary institutions needed information in varying formats to perform their job roles. Amin, Feroze, Kaliyadan and Al Wadani (2011) attributed online information utilisation to academic succession Saudi Arabia. The study revealed that the majority of the faculty had utilised online information resources to support their teaching and research roles. However, Amin *et al.* pointed out the need to provide appropriate training on how to use online databases to improve teaching, research and community engagements. These studies underline the need for different approaches in the provision of information services to medical faculty to support their job roles.

Wilson (1994) points out that understanding information utilisation by faculty can assist in the design of effective interfaces for human and information sources interaction.

6.6 Information Sharing by Medical Faculty

The preferred modes and motivation for sharing information by the medical faculty are discussed in this section.

6.6.1 Modes of Information Sharing by Medical Faculty

The findings revealed that medical faculty preferred information sharing through face to face communication as expressed by 103 (63.6%) respondents. The findings indicated that the majority of medical faculty preferred face to face information sharing in the tertiary health institutions. Shipman, Stoddart and Peay (2012) explain that information sharing includes dissemination of existing knowledge among team members and conveying new knowledge from the external environment through different means that include face to face, with instantaneous response. Contrarily, Sherer, Shea, and Kristensen (2003) indicated that face to face means of sharing information requires travel time and may not be appropriate for faculty when they have large amounts of information at their disposal on the internet.

Martin and Delawska-Elliott (2015) emphasised the need for partnerships to enhance information sharing in large teaching hospitals in a western US statewide health system.

Kritz, Gschwandtner, Stefanov, Hanbury, and Samwald (2013) pointed out that face to face information sharing sometimes occurs due to inaccessibility of relevant, trustworthy resources for medical faculty. Delawska-Elliott, Grinstead, and Martin (2015) advocated for the hospital library plan that focuses on the user and institutional needs in order to encourage information sharing.

Cullen, Adeyoyin, Olorunsola, and Idada (2004) surveyed users' preferences towards the use of social media for sharing medical information with other physicians. Agazio and Buckley (2009) regarded the non-use of social media as an untapped information resource in nursing education. The findings found neither age nor gender as impacting on sharing of information through different information services available in the institutions. The survey revealed that seniority was the only moderating factor to medical faculty information sharing. Hallam, Ritchie, Hamill, Lewis, Newton-Smith, Kammermann and O'Connor (2010) examined the use of databases for managing patient's records in Australian hospitals. The study showed that patient records serve as a powerful tool for information sharing on patients' profiles, ailments and diseases. Similarly, Haliso (2011) asserts that research activity involves information sharing by faculty to acquire knowledge and skills for operational knowledge transfer in their workplace. The study revealed that academic librarians in public universities in South-West Nigeria were enablers of information sharing in their endeavour to increase productivity.

Salaam, Ajiboye, and Bankole (2013) examined limitations of knowledge sharing by academics in Nigerian tertiary institutions identified the high cost of journals, books and computers as affecting the faculty ability in sharing information for academic purposes. In contrast, Reinholt, Pedersen, and Foss (2011) found that internet networks impaired knowledge sharing as a result of trust and reciprocity that may not be present.

6.6.2 Motivations for Information Sharing among Medical Faculty
The findings revealed that 90 (55.6%) respondents shared information in order to seek a second opinion in the discharge of their job mandates. The other motivations for sharing information included discussing cases 30 (18.5%) respondents); keeping up with trends 24 (14.8%), and consulting to gain practical knowledge 9 (5.6%). Veletsianos (2012) reported that information sharing among scholars is aimed at assisting them to grow intellectually. Furthermore sharing of information was not motivated by self-centred interests but for the collective academic success of all the faculty. Weller (2011) revealed that information

sharing is considered fundamental to the advancement of the clinical decision in a healthcare setting. Tang, Chan, Zhou and Liaw (2013) observe that information sharing is also motivated by the need to improve the quality of patient care and also to deal with workplace issues. Okebukola (2002) is of the view that information sharing is aimed at promoting and improving faculty research and fostering collaboration among Nigerian universities.

6.7 Tools Used by Medical Faculty to Access Information in the Library

Findings from this study revealed that the majority of respondents (60 (37.0%)) used the library catalogue while 51 (31.5%) used indexing tools to access information in the library. The findings showed that libraries in tertiary heath institutions were yet to deploy modern information retrieval tools for accessing their collections. This is in contrast to the global shift towards Electronic Information Retrieval (EIR). The reliance on traditional information retrieval tools may be attributed to lack of ICT infrastructure in academic libraries in Nigeria (Okoroma, 2010). Adebayo (2013) examined the factors associated with cataloguing electronic resources in selected university libraries in Nigeria. The study highlighted the lack of adequate physical description of electronic resources in electronic cataloguing. The study suggested the adoption of information and communication technologies (ICT) in Nigerian academic libraries and adequate funding of tertiary institutions by their parent bodies to assist in the development of information access tools. The findings revealed that there was a gradual departure from the traditional use of manual catalogues by the academics in the tertiary institutions in Nigeria, towards electronic access tools such as the Online Public Access Catalogue. Akintunde and Anjo (2012) pointed out that Carnegie Corporation of New York was funding the retrospective conversion of manual catalogue records to electronic formats and also providing training at some universities in Nigeria.

The slowness in the adoption of electronic tools of accessing information is not limited to Nigerian medical libraries. Agaba (2005) investigated the utilisation of electronic information resources by the academic staff of Makerere University in Uganda and found that electronic information resource access and utilisation by academic staff was hampered by lack of effective retrieval tools and recommended improvement of Information and Communication Technology (ICT) infrastructure. The study however argued against the findings of the current study that found the need for a shift by faculty from reliance on the manual catalogue to electronic information search and access tools.

Saunders (2008) also asserted that easy access by faculty to information resources are key predictors of information resource satisfaction while library facilities and library staff are negligible predictors. Kules, Capra, Banta, and Sierra (2009) found that there was growing adoption of information search applications in the library through the structured metadata for online collections. Gbaje and Kotso (2014) vouch for information navigational tools with useful links to the online library catalogue to allow users to locate information at the sites quickly and easily. Furthermore, Xiao-Ling and Li (2012) report that catalogues and specific databases on varying subjects will assist information searching and discovery.

6.7.1 Information Resources Used Most Often by Faculty

The findings revealed that institutional libraries were most often visited in order to use information resources by 86 (53.1%) respondents followed by institutional e-library/cafés by 39 (24.1%) respondents, other libraries by 15 (9.3%) respondents, the public library by 10 (6.2%) respondents and the research library by 7 (4.3%) respondents. These results indicate that faculty prefer to visit institutional libraries for using information. The findings further suggest that institutional libraries are an institution's information nucleus in the tertiary health institutions. Previous studies (Abubakar, 2011; Kietzmann, Hermkens, McCarthy, and Silvestre, 2011; Kind, Genrich, Sodhi, and Chretien, 2010) reaffirm that the academic library as the heart of higher institutions of learning around which all academic activities revolve. Anunobi and Okoye (2008) are also of the view that a highly coordinated academic library is crucial for any academic institution to promote teaching, learning and research.

Although, Ani (2005) submits that academic libraries in Nigeria are overwhelmed with poor quality library resources and the lack of current journals, books and other resources that impede quality research and teaching. However, medical libraries are supposed to be an integral part of the tertiary health institutions and are established to support faculty in their roles through information gathering, organisation, preservation and dissemination of books and non-book information resources. Ludwig (2010) asserts that health science libraries are becoming active in retooling space for awareness, collaboration, examination, communication and socialization through diverse information provision delivered through dynamic services.

6.7.2 Medical Faculty Access to and Use of Internet

The findings revealed that 144 (88.9%) respondents agreed, and 15 (9.3%) disagreed respectively that they used the internet to support their job roles. One of the medical librarians interviewed also observed:

> *"The preferred information sources by the medical faculty are*
> *electronic information with the internet because of its portability*
> *and convenience of use". (ML001)*

The findings confirmed the importance of internet use to support academic activities in the tertiary health institutions.   Jagboro (2007) asserts that the internet is a complex, rich and multi-layered dynamic textual environment that provides numerous prospects for academic institutions. The internet may additionally serve as a means of disseminating information, and facilitating interactions between medical professionals and patients (Barab, Thomas, and Merrill, 2001). In agreement with the foregoing, Okebukola (2002) pointed out that it was noteworthy that tertiary health institutions in Nigeria have adopted the Internet for teaching and research.

Another finding from this study further confirmed that 77 (47.5%) respondents accessed the internet from their offices, 15 (9.3%) accessed the internet from the institutional library while 10 (6.2%) used internet cafés to access the internet. The high number of respondents who accessed the internet from their offices can be attributed to the fact that offices give comfort, privacy and convenience. Accessing information in the offices also enable faculty to attend to other academic responsibilities simultaneously.

Younger (2010) revealed that medical faculty use the internet for their patient care role. Younger further noted that interactions with patients affected the ways in which healthcare professionals utilised the internet. For instance, faculty used the internet to deliver training programmes while teaching and also when attending to patients at the bedside to record vital information relating to diagnosis and treatment. Medical faculty used the internet at the bedside of patients to ask colleagues and/or search for a wide array of information relating to patient care. Baker, Wagner, Singer, and Bundorf (2003) however noted the limitations of the internet in healthcare service delivery with regard to misinformation and potential difficulties with the confidentiality of patient records. McGowan, *et al.* (2012) confirmed factors influencing physicians' preference for usage of the internet to share medical knowledge with

others, to include ease of use and usefulness. They also found that neither age nor gender had any influence on the utilisation of the internet by medical faculty.

6.8 Library Services Provided to Medical Faculty and Skills Required to Use Services

The discussion in this section cover types information services and skills that are provided for the medical faculty to access and use the library services.

6.8.1 Type of Information Services Provided to Medical Faculty

The findings revealed that reader services in the library was the most common information service provided to medical faculty followed in decreasing order by: reference services, audiovisual services and lending services among others. In contrast Edem and Umoren (2012) found in a study on information brokerage in the University of Calabar Library, Nigeria, that learning and research brokerage on publication services were the most frequently provided and used. The study recommended the provision of subject specialist librarianship service in academic libraries to facilitate the specialised service delivery to the faculty. Abubakar (2011) on his part advocated for the provision of other library services like OPAC, e-journals, e-books and synchronisation of information services to strengthen the current state of reader services in the tertiary institution libraries in Nigeria. The foregoing is in tandem with the submission by Ajuwon and Olorunsaye (2013); Aremu, Omoniyi and Saka (2015) that identified the need for subject specialist librarians that are trained for a particular area of medicine to support new approaches and information types in the medical libraries.

6.8.2 Skills Needed to Access Information Resources in the Library

The findings reveal that the respondents needed catalogue use skills (63 (38.9%)); classification skills (24 (14.8%)); accessing databases skills (24 (14.8%)). Additional findings show that respondents required computer literacy skills (18 (11.1%)), internet skills (14 (8.6%)) and skills for accessing the Medline materials (4 (2.5%)). The findings revealed the skills faculty required to effectively make use of information resources in the libraries included catalogue use and searching skills, classification skills and skills in the databases access. Similarly, Siamian *et al.* (*2*013) in a descriptive study of four teaching hospitals in Iran revealed that nurses used far more human and printed resources than electronic resources to seek information. The need to impart skills for searching for information in electronic resources was therefore identified. Barnard, Nash, and O'Brien (2005) underscore an inclusive curriculum for nurses that would advance their information skills to access and

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use available evidence to support clinical decisions. Gbaje and Kotso (2014) also assessed the contents of Nigerian academic libraries and found that many of the academic libraries in Nigeria do not provide their patrons with information search skills to facilitate access to their resources. The study noted that the decline in the use of physical collections and services of libraries may affect the quality of teaching, research and patients care unless addressed through the exposition of faculty to library information search skills. Furthermore, Perez-Stable, Sachs, and Vander Meer (2013), in the study of designing innovative instruction using faculty feedback towards library research instruction, revealed that faculty needed a formal instructional session to gain necessary skills for accessing library resources that could help them with their library research.

6.9 Reasons for Use Information Sources by Medical Faculty

The findings showed that 51 (31.5%) respondents required information for recording patients data (history, diagnosis, treatment and discharge); 38 (23.5%) for research and 26 (16.0%) writing reports. Furthermore faculty required information for teaching, following up on patients' progress and preparing for meetings. Sawka, Straus, Rodin, Tsang, Brierley, Rotstein and Goldstein (2015) examined how physician's information preferences impacted medical knowledge acquisition and decision-making. The findings showed that knowledge of the patient's medical history enabled faculty to understand patient cases that sometimes may extend beyond managing a particular patient to the patient's family background. Therefore, the primary reason for needing information was to provide proper healthcare service delivery to the patients and management of patient care. Robust healthcare service delivery depends on the efficient and effective management of patients' records from admission through to discharge and medical follow-up. Medical faculty also needed information to facilitate determining diagnostic history of patients.

In a study of barriers to medical health records management in Nigeria, Ayeni and Misra (2014) posited that medical professionals required new ways to ease the stress of manual records. The medical faculty also needed information to understand patient diagnosis and administration of drugs and treatments. Hillestad, Bigelow, Bower and Girosi (2005) observed that access to information by medical faculty helped them to improve healthcare efficiency and management of diseases, assist current and future patients' treatment, assist medical faculty in fulfilling their teaching and research roles. Provision of sufficient data in the patients' record through accurate record standards can allow easy management of patients' especially in emergency cases. Hsiao and Hing (2012) found that medical records

provide clinical summaries of patients' hospital visits with detailed clinical summaries of clinical diagnosis, laboratory tests and treatments. Majeed (2014) observed that only through accurate, comprehensive, current and available patient records can medical personnel offer the best treatment to patients. The information gained and accessed can assist faculty to apply it to their job roles to design patient's records for academic purposes of teaching and research (Chaplin, Meloni, Eisen, Jolayemi, Banigbe, Adeola, and Kanki, 2015).

Results from the qualitative part of the study revealed that effective record management can assist medical faculty limit costs and the risks that are associated with poorly managed patient information. The findings further confirmed the results of research that medical information informed research, future care of patients, protected patient confidentiality, helped understand legal implications and intellectual property issues (Lucas, 2008). Furthermore, the findings revealed that access to patient records underpinned organisational accountability for planning and decision making that can stand the legal requirements in courts of law on medical issues adjudication. Therefore, information accessed by medical faculty can help to gain deeper knowledge about patients' conditions for promotion, medical research and teaching.

Both qualitative and quantitative findings show that medical faculty attached great importance to accessing information for research to deal with various ailments confronting developing countries including Nigeria. Successful medical teaching, research and patient care are dependent on information that is available to medical faculty. Nemeth, Anders, Brown, Crandall, Grome, Chung and Pamplin (2013) observed that access to relevant information by medical faculty will facilitate the development of better support for clinicians and medical teams in their work to improve reliability, accuracy and efficiency of patient care. Cockerham (2014) believed that sources of medical information provide knowledge and patterns of emerging diseases.

6.10 Faculty's Degree of Satisfaction with Information, its Utilisation and Sharing
The findings revealed that 48 (29.6%) of the respondents were satisfied, 35 (21.6%) dissatisfied and 63 (38.8%) were neutral with regard to the information they received. Similarly, 48 (29.6%) respondents were satisfied with the way they utilised information to perform their job roles. With regard to how information helped them collaborate with others, 77 (47.5%) respondents were satisfied, 37 (22.8%) were dissatisfied and 37 (22.8%) were neutral. Another finding revealed that 65 (40.0%) respondents were satisfied, 75 (46.3%)

were neutral, 13 (18.0%) were dissatisfied with utilising information sharing with colleagues in their institution. However 97 (59.8%) respondents were satisfied as far as information sharing with colleagues in other institutions was concerned while 45 (27.8%) respondents were neutral.

Findings from the qualitative analysis showed participants were concerned about inadequate information services provided to facilitate effective performance of job roles. In addition, there was limited support to enhance use of information, its sharing and for collaboration. Collaborative efforts in satisfying user information needs is underscored by Wilson's (1994) model of information behavior though this has been given less attention in the literature.

The findings seem to point to the need to enhance collaboration and information sharing among faculty to compensate for paucity of information resources available to the faculty in Nigerian tertiary health institutions. Chang and Shen (2011) advocate for increased reliance by faculty on electronic information that is conducive to information sharing and collaboration in order to overcome the declining print resources in the academic libraries.

Regarding information sharing, the findings revealed that the majority of the respondents maintained neutrality. Manafi and Subramaniam (2015) investigated knowledge sharing among lecturers in Malaysia, and suggested that the university needed to implement effective human resources management (HRM) practices to increase knowledge sharing.

The qualitative findings further confirm that information sharing in the institutions studied were critical to medical faculty in the performance of their job roles. Wilson's (1994) and Leckie *et al.*'s (1996) models of information behavior emphasised information sharing for meeting job tasks completion. Wilson (1994) points out the growing frustration of users with channels they employed to seek, utilise and share information.

Many studies (Pryss, Langer, Reichert and Hallerbach, 2013; Chaplin *et al.* 2015; Chen, Safdar and Nagy, 2011) point out that information sharing and collaboration create a concrete plan for a revised curriculum in medical schools to improve information provision for faculty job roles. For instance, Pryss *et al.* (2013), in a survey confirmed that health care professionals can create, manage, monitor and share tasks through the use of mobile and other information provision platforms to manage and improve patient outcomes. Chaplin *et al.* (2015) asserted that medical facilities in Nigeria have adopted an electronic medical record system (EMRS) to link hospital databases to local area networks to enable medical

staff to share information to improve patient care and for efficient reporting and accountability.

However, Leckie *et al.*'s (1996) model of information behaviour has been criticised for providing less focus on information sharing (Joseph, Debowski, and Goldschmidt, 2013). Alpay (2001) emphasises institutional culture or subculture as some factors that can constrain or enhance sharing of information.

6.11 Problems Faced by Medical Faculty in Seeking, Sharing and Utilising Information

The findings from the study indicated that 67 (41.4%) respondents agreed that inadequate resources in the institutional library constrained their information seeking, utilisation and sharing behaviour. Besides the lack of time listed by 28 (17.3%) respondents, the high cost of journal subscriptions (8 (4.9%)) also affected their access to and use of information. The findings further indicated that too much information on the internet 4 (2.5%) respondents), inadequate financial support from employer 2 (1.2%) respondents), and lack of skill to share and collaborate 1 (0.6%)) affected their ability, to access, share and utilise information. The findings reveal multifarious obstacles to medical information service delivery in the surveyed tertiary health institutions as noted by the respondents. Walters (2012) reported that patron driven acquisition of information resources in academic libraries has failed to support the broader educational mission of the universities. This approach has only focused on the information delivery rather than collection development at the expense of the long-term need of the institutions. Efe (2013) reported that healthcare services in Nigeria operated in an environment of inadequate skilled human resources, poor funding and lack of information resources which contributed to poor service delivery.

Ranganadham and Babu (2012) in India revealed on the contrary, adequacy of library resources that include both e-resources, print sources, and overall user satisfaction with information service provision. The study showed that electronic resources have enhanced the sufficiency of tertiary institution information resources in India. Busayo and Ajegbomogun (2014) pointed out that the problems faced by the academic libraries in Nigeria vary and suggested a unique solution to address peculiar information services problems in the tertiary institutions.

Curry (2003) opines that diminishing information resources can be attributed to academic library short opening hours because of security problems during expanded opening hours and also because of limited budget. In contrast Omekwu and Echezona (2009) are of the view

that library services in universities in Nigeria are not constrained by opening/closing hours because information users' are still able to gain access to online materials. However, the observation of Omekwu and Echezona does not apply to electronic information resources and this makes for necessary and frequent visits to the library to get the information they need.

Adeleke, Lawal, Adio, and Adebisi (2014) observed that lack of effective health information management systems in Nigeria are due to the prevalence of cumbersome paper-based and disjointed health information management systems that make informed healthcare decision-making tough. The study therefore suggested IT skills and training needs for health information management professionals, and provision of IT infrastructure such as computerised healthcare information to be put in place. Ajayi (2013), in a similar finding revealed that nurses in Nigeria lacked computer knowledge while in the School of Nursing, but they learned it while practicing, and for that reason only a few can access and retrieve information from the available databases. Ajayi (2013) also found that nurses were faced with heavy workloads, lack of IT skills and the location of the library resources was often far from their work place. Kritz *et al.* (2013) reported that issue of trust with internet resources and frequent reliance on social media among physicians needed to be treated with caution.

Kritz *et al.* advocated for governmental support in the development of user-tailored medical search tools, open access and e-learning to enhance access by physicians to information. Frehywot, Vovides, Talib, Mikhail, Ross, Wohltjen and Scott (2013) adduced varied reasons for tertiary medical institutional investment in e-learning including that it would provide additional tools to support faculty in their teaching, through connection to partner or community teaching sites and sharing of digital resources. However, to develop adequate search tools, a differentiated approach that takes into account the differing needs of physician subgroups is needed.

The findings revealed lack of librarians was another obstacle to the provision of information services in the tertiary health institutions. Egberongbe (2011) investigated the use and impact of electronic resources on the productivity of lecturers, researchers and students of the University of Lagos and found the lack of librarians as the main obstacle. Agboola (2000) also enumerated the problems of university libraries in Nigeria to include funding, limited stock, poor physical facilities and lack of deployment of modern technology. Agboola focused on obstacles facing university libraries without considering the special

needs of medical faculty. The peculiarity of medical faculty job roles that include teaching, research and practice requires unique solutions. Cogdill *et al.* (2000) found that information needs in academic medicine centered around disease diagnosis and drug therapy. The findings indicated that information needs and seeking in the context of community medical education need to explore practice size and access to appropriate Web-based information resources.

Igbineweka and Ahmed (2013) posits that the quality of services by a given academic library depends to a large extent on the staff quality. Ogungbeni, Adeleke and Opeke (2014) averred that in Nigerian university libraries all categories of staff should be trained and motivated to offer effective information services

Library location was also cited as a major obstacle to access to and use of information with findings indicating that distance from faculty office to the medical libraries was considered a hindrance. In this regard faculty perceived the medical library as not being centrally located or close to their offices where they can conveniently access and utilise needed information. Baudino, Johnson and Park (2013) assert that the location and space in the academic library can promote human interaction and learning. Similarly, Sharma (2014) advocated for the positioning of a library building centrally for ease of access by the community of users.

The problems mentioned above might have hampered medical faculty capacity to access, share and use information to meet their job mandates of teaching research and patients care. Leckie *et al.*'s (1996) model of information behavior advocates for skills development in order to enhance seeking, access and use.

6.12 Suggested Solutions to Challenges Facing Medical Faculty in Seeking, Using and Sharing of Information

The findings revealed that qualified library staff was the most commonly proffered solution with 72 (44.4%) respondents saying this would enhance access to and use of information by medical faculty. This was followed by information searching training by 43 (26.5%) respondents, and digitisation of all information resources in the institutions 17 (10.5%) respondents). Moreover, budget improvement for collection development 10 (6.2%) respondents), improved information sharing with colleagues within and outside their institutions 4 (2.5%)) were also suggested as solutions. The respondents also proposed that adequate funding, library space and provision of information resources in varying formats would help address some of the challenges facing medical faculty. Goldberg and Bryant

(2012) developed a comprehensive country framework that can be adapted to enhance capacity building in Nigeria for improving information provision for medical faculty. The capacity building framework includes training programmes that use workshops, cohorts, seminars and institutionally sponsored local and international conferences for the library staff. Mars (2011) suggests that sub-Saharan Africa with the burden of disease and extreme shortage of health workers need to promote e-health as a way of enhancing patient care and education. Similarly, Burdick, Morahan and Norcini (2007) recommend the need to support medical faculty by enhancing international collaboration.

Sali and Akor (2015) recommended that consideration be given to staff / student ratios and library facilities to ensure adequate library space in the tertiary health institutions. In addition, improving the buildings that host information resources may contribute to the improvement of satisfaction of users and librarians who make use of these spaces. Montgomery (2014) asserts that library users' information needs are diverse, and such diversity of user needs may be used to determine the needs of library user space.

Jindal and Lakshmi (2004) pointed out that ICT has enhanced sharing of information. Electronic information affords medical faculty the chance to explore extensive information to improve information for teaching, research and patient care. Matthews (2012) also justified the adoption of electronic information among faculty to help meet the individual unique information needs. Such electronic resources should include subscription to e-journals, medical databases and provision of more facilitating apparatus for their delivery.

The respondents also suggested that collaborative research would improve information sharing and utilisation by the faculty. Collaborative research involves efforts to partner for the purpose of enhancing individual and collective scholarly productivity. Rostan, Ceravolo, and Metcalfe (2014) aver that collaborative research is the knowledge infrastructure through which a university's scope of academic research can be justified, to improve academic performance and increase the knowledge economy. Addressing challenges facing medical faculty in their quest for information cannot be underestimated. Wilson's (1994) model of information behaviour therefore points out that completion of an information search may lead to satisfaction or non-satisfaction by the user and this may necessitate repeating or changing information search strategies among several possible alternatives.

6.13 Summary

Demographic information about faculty age, gender, nationality, and years of job experience, qualifications and institutions were found to influence information behaviour of medical faculty in their quest to fulfil their job roles as corroborated by (Curtis, Weller, and Hurd, 1997; McCannon and O'Neal, 2003; Renwick, 2005; Schonfeld, Housewright, and Ithaka, 2010). Information needs for teaching roles was prominent among the respondents in the findings. The findings revealed that information needs of the medical faculty were also influenced by academic position, demographic, psychological and environmental factors.

The findings further revealed that medical faculty expressed their information needs in various ways including consulting senior colleagues and other information sources. Leckie (1996) asserts that faculty require information for improving medical knowledge and also to help meet the information needs of junior faculty.

The findings revealed that the preferred information sources of medical faculty were departmental meeting among others. Moreover, medical faculty spent considerable time in seeking information from books. Anunobi and Ogbonna (2015) recommend that hybrid (electronic and print) information resources would assure effective library services to the faculty.

The findings revealed that collaborative partnerships among faculty enhanced information sharing and use as claimed by a range of researchers (Cole, Barker, Kolodner, Williamson, Wright and Kern, 2004; Curtis and Weller, 1993; Curtis and Weller, 1997).

The findings revealed that medical libraries in the tertiary institutions studied were not using electronic tools for information retrieval but instead relied on traditional library catalogues is mostly used by the faculty in the tertiary health institutions in Kwara State, Nigeria.

The findings revealed that challenges of funding, skills, and opening hours, location of the library, space and limited resources affected the information seeking, utilisation and sharing of medical faculty. Consequently it was suggested that qualified library staff, training of medical faculty, digitisation of all information resources, provision of open access and electronic databases would help ameliorate some of these challenges.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

The purpose of this study was to investigate the information behaviour of the medical faculty in three tertiary health institutions in Kwara State Nigeria. The study sought to address the following research questions:

1. What are the information needs of medical faculty in tertiary health institutions in Kwara State Nigeria?

2. How do medical faculty express their information needs for meeting their job-related roles in tertiary health institutions?

3. How do medical faculty in tertiary health institutions seek, share/collaborate and utilise medical information for teaching, research and patients care?

4. What are the information sources available to medical faculty in tertiary health institutions?

5. What are the problems encountered by medical faculty while seeking, sharing and utilising medical information and how are such problems overcome?

The study adopted the postpositivist paradigm and examined information behaviour of medical faculty using Wilson's (1994) and Leckie, Pettigrew and Sylvian's (1996) information behaviour models. This study used survey design to select participants from the selected tertiary health institutions in Kwara State. Census, purposive and non-proportional sampling methods were used to recruit respondents who included faculty, the heads of the institutions and departments, deans and medical librarians. A self-designed questionnaire and interview schedules were used to collect data from respondents from their offices in the tertiary health institutions. The SPSS version 21 software was used to analyse quantitative data and generate descriptive and inferential statistics. Qualitative data were transcribed and analysed thematically to complement the quantitative data and presented concurrently.

The rest of this chapter presents a summary of findings, conclusion, recommendations, originality and contribution to the study and proposal for further areas of study.

7.2 Summary of Findings

This section summarises the research findings of the study.

The first research question sought to identify the information needs of medical faculty in the selected tertiary health institutions. The findings revealed that faculty needed information to improve their teaching, research and clinical practice roles. The medical faculty also needed information to support their professional development and career progression. The findings also revealed that demographic, psychological and job roles were factors that influenced the information behaviour of the medical faculty in selected tertiary institutions in Kwara State Nigeria.

The second research question examined ways through which faculty expressed their information needs to support teaching, research and patient care. The findings revealed that faculty expressed their information needs mainly by asking senior colleagues (87 (53.7%) respondents), asking other colleagues 13 (8%) respondents), and consulting institutional library collections 22 (13.6%) respondents). Furthermore, 2 (1.2%) respondents consulted department/unit collections, 33 (20.4%) searched the Internet and 4 (2.5%) consulted personal collections of books and journals, 4 (2.5%) consulted reports and other sources were consulted by 1 (0.6) respondent. Moreover, the respondents sought help from medical librarians who provide information literacy and bibliographic support in the tertiary institution libraries and other information facilities.

The third research question sought to identify the information utilisation and sharing/collaboration behaviour of the medical faculty. The findings revealed that medical faculty required information to support teaching, research and to improve patient outcomes. The findings revealed further that 77 (47%) medical faculty utilised the internet for personal purposes (e.g. email and social networking), 56 (34.6%) utilised the library to improve teaching. Some 84 (51.9%) respondents also utilised the internet more frequently to improve their teaching. The findings also revealed that 45 (27.8%) medical faculty used the library for conducting research, writing reports and articles, 85 (52.5%) utilised the internet more frequently for conducting research, writing reports and articles while 28 (17.3%) respondents used the library to improve patient outcome. The findings also revealed that 43 (26.5%) faculty frequently utilised the internet to improve patient outcomes.Of concern is that 44 (27.2%) faculty never utilised the library to answer patient queries.

The findings indicated that 103 (63.6%) participants shared information face to face in performing their job roles. Reasons for sharing information this way revealed that 90 (55.6%) respondents consulted colleagues to ask for a second opinion. Moreover, the majority of the respondents, 144 (88.9%), used the internet to access, utilise, and share/collaborate medical/health information. Finally, 77 (47.5%) respondents used their offices to access the internet.

The fourth research question investigated the information sources available to the medical faculty. Findings revealed sources used by medical faculty included a medical library, the internet and other information sources. The findings showed that the preferred information sources were books as revealed by 103 (63.6%) respondents, serials (journal, magazines and newspapers) by 38 (23.5%) respondents and the internet 13 (8.0%) respondents. Additional findings show that 13 (8.0%) respondents preferred medical databases (Medline, Hinari, and other databases), 2 (1.2%), theses, research papers, and reports by 2 (1.2%) respondents and other sources were preferred by 4 (2.5%) respondents.

The findings revealed that books were the most common and preferred information sources by the faculty. The findings revealed that the following tools were the most frequently used by faculty to access information sources: library catalogue (60 (37.0%)), indexing journals (51 (31.5%)), online catalogues (29 (17.9%)), ask librarians (12 (7.4%)) and bibliographies (6 (3.7%)).

As to where the medical faculty accessed sources of information from, the findings revealed a variety of locations: the majority used the institutional library (86 (53.1%)), institutional e-library/café (39 (24.1%)), public library (10 (6.2%)), research library (7 (4.3%)), and 15 (9.3%) used other institutional libraries. The main location where the faculty accessed the internet was the internet was from their offices (77 (47.5%)), followed by 25 (15.4%) respondents who used personal computers/modems. Further findings reveal that 15 (9.3%) faculty used the institutional library, 12 (7.4%) accessed the internet from home, the internet café by 10 (6.2%) and 6 (3.7%) used other libraries.

Findings also indicated the frequency of respondents' visits to the library as regularly, 61 (37.7%) respondents, followed by rarely for 34 (21%) respondents, once a month for 8

(4.9%) respondents; daily for 21 (13%) and 1 (0.6%) respondent said they never visited the library.

The most commonly used library information services were reader services (52 (32.1%) respondents), reference services (44 (27.2%), audiovisual services (19 (11.7%) and lending services (16 (9.9%) respectively. Internet search services, online database services and photocopying services were the other services that were commonly used information services by the medical faculty in the tertiary health institutions.

The findings also revealed that the reasons for which respondents used varying information sources were: for recording patients data (History, diagnosis, treatment and discharge) (51 (31.5%), for research (38 (23.5%)) and writing reports (26 (16.0%)). The findings additionally showed that faculty used the information to prepare mainly for teaching (15 (9.3%), reading patient health history (13 (8%)), following up patients' progress (4 (2.5%), preparing for meetings (2 (1.2%)), and other reasons not listed (2 (1.2%).

As to the degree of satisfaction with channels of communicating and sharing information with colleagues, the results showed that 82 (50.6%) respondents were satisfied, (37 (22.8%) were dissatisfied and 32 (19.8%) were neutral.
About the degree of satisfaction with the utilisation of information for collaboration in other institutions, the results indicated that 77 (47.5%) respondents were satisfied, 37 (22.8%) were dissatisfied and 36 (22.2%) were neutral. Similarly, the results suggest that 65 (40%) respondents were satisfied, 75 (46.3%) neutral and 13 (8%) were dissatisfied with information sharing with colleagues in their institutions.

The fifth research question investigated the problems associated with faculty information seeking behaviour. Findings revealed that inadequate resources in the institutional library as demonstrated by 67 (41.4%) respondents, lack of time by 28 (17.3%), too much information on the internet by 4 (2.5%) and the high cost of journal subscriptions recorded by 8 (4.9%) respondents. Additionally, respondents highlighted inadequate financial support from employers (2 (1.2%)), and lack of skills to share and collaborate by 1 (0.6%) respondent respectively. The results also showed that 67 (41.4%) respondents agreed, 41 (25.3%) disagreed and 28 (17.3%) strongly agreed that the problems had affected their professional job performance.

The findings from the qualitative analysis revealed that medical librarians had difficulty understanding the information needs and information-seeking behaviour of the medical faculty. The findings also revealed that some medical faculty found effective patient care complex because of limited knowledge of computers and inability to retrieve information from healthcare databases. The findings further revealed that the medical faculty is concerned with the inadequacy of human resources to support information access, lack of information resources and limited remote access to online materials. Other related problems revealed by the faculty include information overload from the internet, the high cost of journal subscription, inadequate resources in the institutional library, lack of time and requisite skills for information sharing and collaboration, and an insufficient budget.

The respondents proposed strategies for overcoming the problems that they faced. Among their proposal were the provision of qualified library staff, provision of information search training and digitisation of all information resources for easy access via wifi and other remote access facilities. Further suggestions proffered by the respondents included increasing the budget allocation for collection development and improved information sharing with colleagues within and outside their institutions.

Other proposed solutions included: capacity building of medical faculty in the use of electronic resources, collaborative engagement, enhanced remote connectivity and continuing professional development (CPD). Respondents specifically mentioned convenient and ideal library location, expansion of library collections and extension of library space for the additional provision of information services and reading areas.

7.3 Conclusion

The findings revealed that the information needs of medical faculty in Nigeria among male and female were similar. This finding implies the need to plan for common information service provision for both male and female medical faculty in the tertiary health institutions in Nigeria. The similarity of information needs among male and female medical faculty is due to the collegiate system that operates with composition of faculties/colleges in Nigerian medical institutions. In the institutions, faculty are encouraged, irrespective of gender and age, to achieve a collective and dynamic service delivery in health care. Wilson (1994) asserted that information need is incumbent upon task completion, and, therefore, demographic indices such as gender and age do not affect information needs.

The findings also showed that nursing personnel were in the majority among the medical faculty employees in the tertiary health institutions. Therefore, the demand placed on information resources by the nurses to meet their information needs were greater compared to another medical faculty. Evans (2013) advocates the need to provide effective support to nurses to meet their information needs for s teaching, research and patient care roles.

The findings revealed that medical consultants represented the core personnel in teaching, research and patient care. The findings suggested that medical consultants needed specialised information to undertake and promote such roles as the mentorship of junior faculty for academic engagements. DeCastro, Sambuco, Ubel, Stewart, and Jagsi (2013) conclude that medical consultants needed mentoring networks for sharing relevant information with the junior faculty to help them build lifelong academic careers.

The findings further indicated that information needs for improving teaching roles were the major reasons why medical faculty needed information. Srinivasan, Li, Meyers, Pratt, Collins, Braddock and Hilty (2011) in the context of Canada and the US advocated for developing pedagogical competency among medical faculty to improve their teaching roles. Moreover, findings revealed that environmental factors influenced the information needs of medical faculty for successful delivery of faculty roles in the tertiary health institutions. Such factors include among others proximity to the library, remote access to the internet and access to a diversity of information resources beyond the primary library. Pietersen (2015) in the context of South Africa emphasised the need for academic libraries globally to adapt their services to users' information needs by providing different medical information, and enhancing easy access to such information at the request of the faculty.

The findings further revealed that academic positions were the most common determinant of information behaviour of the medical faculty. The findings also implies that academic ranks correlated to the information needs of faculty in the medical institutions. Niu and Hemminger (2012) suggested the tailoring of information support strategies to meet faculty information needs at the various academic levels. They also advocated for the provision of varying information formats to support the unique information requirements of medical faculty with ease of access and support for the utilisation of information in an enabling atmosphere conducive for academic mandates.

The second research question that sought to determine ways in which faculty expressed their information needs found that most of the time a majority of the faculty expressed their information need by seeking help from their senior colleagues. The faculty also expressed their information needs through searching the internet and other known information sources. The junior faculty turning to senior colleagues for information demonstrated an expression of confidence in their senior colleagues but it would also suggest a lack of confidence and competence to look for information in other sources outside their immediate environs and particularly the information infrastructure. It would also suggest additional responsibility for senior medical faculty who are already overburdened with academic and administrative mandates.

Jessy, Rao, and Bhat (2015) concluded that familiarity was the main reason for faculty preference for a particular choice of information source. Marshall, West and Aitken (2013) concluded that perceived information accessibility and usefulness influenced preference for particular information sources.

The findings suggested that medical faculty preferred printed books to e-resources for meeting their job mandates. They attributed their low preference for e-resources to the unreliability of access, inability to manipulate technology and the steep learning curve of the various electronic interfaces such as e-books. Walters (2013) asserted that lack of consistency in the access to e-books and e-resources and absence of key bibliographic electronic features and authority control were reasons for faculty non-reliance on e-book for information expression and utilisation. The faculty preference for printed book relates to availability and ease of access to the resources in their institutional library. The preference may also be as a result of the professional medical training that emphasises the book as traditional information sources without recourse for datedness.

The third research question sought to determine faculty information seeking, sharing/collaboration and utilisation behaviour. Findings indicated that medical faculty shared similar traits when seeking information for their job roles of teaching, research and patient care. The findings suggested that faculty roles were mostly affected by their information behaviour. Borgman *et al.* (2005) is of the view that individual faculty have dynamic approaches to seeking, selecting, collecting, utilising and organising information resources for a teaching role. Medical librarians must, therefore, take cognisance of the

diverse nature of medical academics' information needs by providing them with information resources in varying formats. Shumaker (2012) suggested that medical librarians must be embedded to work closely with a group of information users, develop a close working relationship and deliver high value customised for faculty information needs.

The findings revealed that the internet was utilised more frequently by the faculty for conducting research, writing reports and articles in the survey of tertiary health institutions. This result suggests that medical faculty perceived the internet as contributing to their job improvement. Tenopir, Volentine, and King (2013) asserted that most academics in the UK used electronic information tools including the internet and social media for work-related purposes.

Findings further revealed that face to face information sharing in performing faculty job roles was common among faculty. However, information seeking behaviour was attributed to the fact that medical faculty believed face to face information sharing afforded them the opportunity to get prompt feedback on their information needs and it is conditional for their roles.

The fourth research question examined information sources used to meet medical faculty information needs. As already pointed out books were the most used information sources by the faculty followed by serials (journal, magazines and newspapers), the internet and medical databases (Medline, Hinari, and other databases). Larivière, Sugimoto and Bergeron (2013) also aver that books recorded the larger proportion of cited literature in the medical faculty's research articles. The least used information sources were theses, research papers and reports. Furthermore, findings revealed that faculty reader services were the most commonly used type of information services. Further to accessing reader services, the medical faculty relied on access to certain tools such as the library catalogue, indexing journals and online catalogues. Renwick (2005) suggested that medical faculty should be skilled in the necessary tools that will provide access to medical information.

The findings also revealed that medical faculty needed certain skills to make use of diverse information resources. Such skills included: catalogue using abilities, classification skills, skills for accessing and using the databases, computer literacy proficiency, internet skills for accessing the Medline materials. The findings suggest the need for a comprehensive

capacity building programme to enable medical faculty to improve their use of the information resources.

Furthermore, the findings revealed various purposes for which medical faculty sought information including recording patient data (history, diagnosis, treatment and discharge), research, writing reports, preparing for teaching students and reading patient health history.

The fifth research question investigated problems that were faced by medical faculty in their information seeking activities. The findings showed inadequate resources in the institutional library, time constraints, and information overload from the internet and high cost of journal subscription, insufficient financial support, lack of awareness of the information sources available, limited access to foreign medical journals and lack of skills to share information with colleagues. These challenges do not augur well for delivery of the medical faculty academic endeavour and patient care. These challenges it would seem are not peculiar to Nigerian tertiary health institutions. Hamrosi, Aslani, and Raynor (2014) pointed to similar issues of non-use of medical information by medical personnel to improve patient care in Australia. Green, Ciampi, and Ellis (2000) bemoan that new clinical questions are frequently unanswered due to challenges related to lack of access to information by medical faculty in hospital-based teaching clinics in the US. The results suggest that the medical faculty were aware of the challenges facing them in finding information to perform their job roles.

The findings suggest multipronged approaches to addressing the challenges facing medical faculty in their quest to meet their information needs. These approaches include recruitment of qualified staff, capacity building in the areas of information search training, digitisation, increasing the budget for collection development, improved information sharing with colleagues within and outside the medical faculty institutions.

7.4 Recommendations

The findings indicated that demographic indices of gender, age, job experience and qualifications do not influence information needs of medical faculty. The results revealed further that information needs were diverse and included among others utilisation of information to support teaching, research and patient care. In this regard the following recommendations are proposed:

- Increased budgetary allocations to medical libraries to enhance collection development to meet the diverse information needs of the medical faculty.
- Improvement of the internet services and more investment in the form of electronic resources to improve medical faculty's access to information.
- Efforts should also be made to put in place relevant policies, and capacity building plans to enhance access to and use of available information resources by the medical faculty.

The study also examined ways through which faculty expressed their information needs in their quest to meet teaching, research and patient care roles. Findings further revealed that medical faculty sought information largely from senior colleagues and also consulted printed books and the internet to support their job roles. These findings lead to the following recommendations:

- A mentoring plan for the junior medical faculty to enable them become independent information seekers and users. In addition, a training plan to capacitate faculty through workshops, seminars, conferences, and others to access and use information beyond their immediate environment is needed.
- An information literacy programme needs to be designed to expose medical faculty to more sources of information and equip them with requisite skills. The design of information literacy program should involve the medical information providers in the institutions with input from the medical faculty to know their specific and general needs.

Additionally, the findings revealed increasing reliance by junior medical faculty on their senior counterparts to support their information needs. The findings also revealed that opening hours of the library were restricted which hampered access to information by medical faculty all the time. Therefore, it is recommended that:

- Library opening hours in the institutions should be made flexible and extended at night and weekends so that information can be accessed all the time by medical faculty to meet their needs.

The study further sought to determine information seeking, sharing and utilisation of medical faculty to support their job roles. The findings showed that the medical faculty preferred face

to face mode of sharing information and collaborating with colleagues. Given these findings, it is therefore recommended that:

- A more formal and coordinated information sharing and collaboration programme such as the community of practice should be encouraged among medical faculty.
- Seminars, symposium, workshops, conferences, of the electronic board, group mail and other social media platform should be promoted to enhance sharing of information.

The findings also revealed that books were major information sources available and preferred by the faculty, followed by serials (journals, magazines and newspapers), the internet and medical databases (Medline, Hinari, and other databases). This finding leads to the recommendations that:

- tertiary health institutions in Kwara State should strive to strengthen the collections of recent and relevant medical books to satisfy the preferred information source for the faculty.
- institutional management should ensure the provision of electronic information for the medical faculty particularly e-books that have the advantage of remote access and wider access without limiting readers to a few copies in the case of textbooks.

The study also identified challenges facing medical faculty in the quest to meet their information needs that included inadequately qualified staff to offer an effective service, limited resources in the institutional library, lack of time, information overload, high subscription costs of journals and poor financial support from the employer. The findings also enumerated lack of awareness of available information sources, limited access to foreign journals in medicine and lack of skill to share information among the medical faculty. Thus it is recommended that:
- The provision of adequate human and financial resources in the institutional libraries should be made available by the respective institutions.
- Awareness programmes should be implemented on the available information resources within the libraries and beyond.
- Library environment allowing remote access to its information by the faculty should be developed.

7.5 Originality and Contributions of the Study

This study investigated the information behaviour of the medical faculty in the tertiary health institutions in Kwara State, Nigeria. The study covered information needs, information seeking, information expression, information utilisation, information sharing, collaboration and information sources to support teaching, research and patients care.

The originality of this study centred on the fact that it is unique from the context of tertiary health institutions in Kwara State in Nigeria. The medical faculty studied included a diversity of medical staff such as doctors, nurses and librarians with academic roles. Such diverse respondents in a single study enriched the outcome from the perspective of collaborative information behaviour. Literature was surveyed across the fields of librarianship, information and medical practice to gain a better understanding of information behaviour of medical faculty. The literature reviewed were from both developed and developing country contexts highlighting trends in information behaviour of the medical faculty and how this compares with a developing country such as Nigeria. A combination of Wilson's (1994) and Leckie *et al.*'s (1996) information behaviour models were used to underpin this study thus generating a hybrid of variables that provided a deep understanding of information behaviour of the medical faculty.

The study also made contributions to theory, policy and practice, and are presented below.

7.5.1 Contribution of the Study to Theory

The results of the study will contribute towards information behaviour theory of medical faculty by revealing additional aspects such as junior faculty relying on senior colleagues for information. The study revealed that faculty preferred a face to face mode of communication as a means of expressing their information needs in their endeavour to meet the requirements of their varied job roles. The study thus extends the application of information behaviour models by adding library systems and senior faculty colleagues as parts of the information system and channels of meeting the information needs by the medical faculty particularly in the tertiary health institutions.

7.5.2 Contribution of the Study to Policy

The study revealed the need for tertiary health institution management to implement policies that will promote and enhance better library funding, capacity building of library staff and medical faculty. The policies should cover continuing professional development, workshops,

seminars and academic community of practice to help meet their information needs. The capacity building plan should include the creation of awareness about the diversity of resources including medical databases, e-resources and infrastructure development to enhance internet access, enhanced remote information access and stable electricity supply.

7.5.3 Contribution of the Study to Practice

The study contributes to practice by providing ways of improving medical librarians' capacity to understand various information needs of medical faculty to meet teaching, research and patient care roles. The study brings to the fore the need to improve collection development and infrastructure improvement to support medical faculty academic mandates. The collaborative engagement necessary between junior and senior medical faculty has been underlined as enhancing capacity building and access to information. This study contributes towards the professional development of medical librarians by identifying critical areas where training is needed to improve information service delivery. A train-the-trainers programme is identified as a need with medical librarians' participation in the medical education curriculum and delivery for a lifelong medical education embedded in the healthcare education.

7.5.4 Contribution of the Study to Society

This study contributes to society through improved medical education for healthcare professionals. The study is envisaged to help increase information utilisation, sharing and collaboration for teaching, research and patient care by the medical faculty. The study will also assist to increase patients' confidence in health care service delivery through timely access to reliable information by the medical faculty. Invariably, society will benefit in terms of enhanced medical and healthcare service delivery.

7.6 Suggestions for Further Research

Not all related areas of information behaviour of medical faculty were covered in this study. Future research should aim to improve information behaviour models based on the weaknesses revealed in Chapter Two. This study also focused on how internet use influences information behaviour of the medical faculty. Future studies should consider investigating how other ICTs such as social media and Web 2.0 among othes influence information behaviour of the medical faculty. Finally, the study was limited to medical academics and

particularly physicians and nurses. Future research should extend to cover other cadres of the medical faculty.

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Appendix 1 Informed Consent Letter

<div align="right">

School of Social Sciences X01
Scottsville, 3209 Private Bag

Pietermaritzburg Campus

24th September, 2013

</div>

Dear Respondents,

Informed Consent Letter

Researcher: Tunde Kamal Omopupa

Institution; University of KwaZulu-Natal

Telephone number: +277611182114

Email address: 213570342@stu.ukzn.ac.za

Omopupa_kt@yahoo.com

Supervisor: Prof Stephen Mutula

Institution: University of KwaZulu-Natal

Telephone number: 033-260 5571

Email address: Mutulas@ukzn.ac.za

I, Tunde Kamal **OMOPUPA**, University of KwaZulu-Natal, South Africa, kindly invite you to participate in the research project entitled, **"Information Behaviour of Medical Faculty in Tertiary Health Institutions in Kwara State, Nigeria"**.

This research project is undertaken as part of the requirements of the PhD, which is undertaken through the University of KwaZulu-Natal, Information Studies department.

The aim of this study is to investigate the information behaviour of medical faculty in tertiary health institutions in Kwara State, Nigeria.

Participation in this research project is voluntary. You may refuse to participate or withdraw from the research project at any stage and for any reason without any form of disadvantage. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Development Cluster, at the University of KwaZulu-Natal.

If you have any questions or concerns about participating in this study, please feel free to contact myself or my supervisor at the numbers indicated above. It should take you about 10-45 minutes to complete the questionnaire and the interview.

Thank you for participating in this research project.

24 September, 2013

---------------------   --------------------

Signature   Date

I .... hereby consent to participate in the above study.

Name:..Date:.....................Signature: ....

Supervisor's details   **Student's details**

Prof. S. M. Mutula   Tunde Kamal Omopupa

Information Studies Programme   Doctoral Student

Academic Leader, Development   Information Studies

School of Social Sciences   School of Social Sciences

UKZN   UKZN

INYUVESI
YAKWAZULU-NATALI

6 August 2014

Mr Tunde Kamal Omopupa 213570342
School of Social Sciences
Pietermaritzburg Campus

Dear Mr Omopupa

Protocol reference number: HSS/0869/014D
Project title: Information Behaviour of Medical Faculty in Tertiary Health Institutions in Kwara State, Nigeria

Full Approval – Expedited

This letter serves to notify you that your application in connection with the above has now been granted **Full Approval**

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project; Location of the Study, Research Approach/Methods must be reviewed and approved through an amendment /modification prior to its implementation. Please quote the above reference number for all queries relating to this study. PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of **3** years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

Best wishes for the successful completion of your research protocol

Yours faithfully

....
Dr Shenuka Singh (Chair)
Humanities & Social Science Research Ethics Committee

/pm

cc Supervisor: Professor SM Mutula
cc Academic Leader: Prof Sabine Marschall
cc School Admin: Ms Nancy Mudau

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
Westville Campus, Govan Mbeki Building
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Telephone: +27 (0) 31 260 3587/8350/4557 **Facsimile:** +27 (0) 31 260 4609 **Email:** ximbap@ukzn.ac.za / snymanm@ukzn.ac.za / mohunp@ukzn.ac.za
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Appendix 3 QUESTIONNAIRE FOR MEDICAL FACULTY IN THE TERTIARY HEALTH INSTITUTIONS

Information Behaviour of Medical Faculty in the Tertiary Health Institutions in Kwara State Nigeria

SECTION A: PERSONAL DATA OF RESPONDENTS

Please **tick** the appropriate box []

A.1 What is your gender?

Female   []

Male   []

A.2 In which of the following age do you belong?

[] Less than 30   [] 31-40

[] 41-50   [] 51-60

[] 61-70

A.3 What is your highest educational qualification?

[] B.Sc.

[] MBBS

[] Masters

[] PhD

Others (Please specify)…………………………….

A.4 What is your nationality?

[] Nigerian

[] Non-Nigerian

A. 5 In which of the following institutions do you normally work?

[] Kwara State School of Nursing and midwifery

[] Sobi Specialist Hospital   [] University of Ilorin Teaching Hospital

A.6 Are you an adjunct or full-time faculty in the institution?

[] Adjunct

[] Full-time

Others (Please specify)…………………………….

A.7 Department/Unit where you normally work

[] Anaesthesia

[] Behavioural sciences

[] Epidemiology and Community Health

[] General Outpatient

[] Internal Medicine

[] Laboratories

[] Nursing Services

[] Obstetrics and Gynaecology

[] Orthopaedics

[] Paediatrics

[] Surgery

Others (Please specify)…………………………….

A.8 What is your Job Title or designation?

 [] Consultant   [] Senior Specialist

[] Specialist   [] Senior Registrar

[] Registrar   [] Assistant Registrar

[] Senior Matron   [] Matron

[] Lecturer I   [] Senior Lecturer

[] Reader   [] Professor

Others (Please specify)…………………………….

A.9 How many years of work experience do you have since you qualified?

[] Less than a year

[] 1-5 years

[] 6-10 years

[] 11-15 years

[] 16-20 years

[] 20 years and above

A.10 How many years of working experience do have in this institution?

[] Less than a year

[] 1-5 years

[] 6-10 years

[] 11-15 years

[] 16-20 years

[] 20 years and above

B. Information needs, seeking and expression by medical faculty

B. 1   I need information for: (Please **tick** all that apply from options below)

[] improving my teaching role

[] improving my research engagements

[] improving patient's outcome

[] keeping up-to-date professionally

[] improving your knowledge

[] continuing education [] answering colleagues' queries

[] answering patient questions

[] writing reports/research paper (not for publication)

[] writing reports/research paper (for publication)

[] teaching staff/students/colleagues (e.g. case presentation)

Others (please specify)……………………………..

B.2 How do you normally express your information needs?

[] Ask a senior colleague

[] Ask other colleagues

[] Ask a librarian

[] Consult institution library collections

[] Consult department/unit collections

[] Search the internet

[] Online database (Please specify)………………………..

[] Annual reports/statistics (from statistical department)

[] Personal collection (e.g. books, journal and reports)

Others (Please specify)………………………………….

B. 3 What type of meetings do you attend as medical faculty? (Please *tick* all that apply)

[] Faculty board/ Departmental/

[] Seminar/Conferences/workshop

[] Ward round

[] Tutorial

[] Professional bodies

Others (Please specify)………………………….

B. 4 How often do you receive information seeking guides in your institution?

[] Once a month

[] Forty nightly

[] Daily

[] Never

B. 5 What percentage of your time do you spend on information seeking?

20- 40%	40-60%	60-80%	80-100%

C. Information sources available to medical faculty

C. 1 Which of the following information sources do you seek in the library? (Please **tick** all that apply)

[] Books

[] Serial (e.g. journals, periodicals, magazine and Newspapers)

[] Internet

[] Medical database (e.g. Medline, Hinari)

[] Thesis/research papers/reports

[] Governmental and non-governmental publications

[] Statistical reports/annual reports

[] Video tapes/microfilms

[] Conference papers/proceedings

Others (Please specify)……………………………………..

C. 2 Which of the tools do you often use to access information (Please **tick** all that apply)

[] Library catalogue

[] Indexing journals

[] Bibliographies

[] Online catalogue

[]Ask Librarians

Others (Please specify)……………………………………..

C. 3 Which of these libraries do you use most frequently? (Please **tick** a box only)

[] My institution library

[] Institution e-library/café

[ ] Research library?

[ ] Public library?

Other library (Please specify)………………………..

C. 4 How often do you visit this library? (**Tick** a box)

[] Daily   [] Once a week

[] Once a month   [] Rarely

[] Regularly   [] Never

C. 5 Do you use internet to access medical/health information?

[] Yes   [] No

C. 6 If your answer above is yes where do you access the internet for your work? (Please **tick** all that apply)

[] Institutional library   [] My office   [] Other Libraries

[] Home   [] Internet Café   [] Personal computer

Others (Please specify)

C. 7 For what reasons do you use information sources such as the patient medical records? (**Tick** all that apply)

[] To record patient data (History, diagnosis, treatment and discharge)

[] To read patient health history

[] Writing report

[] Prepare for meetings

[] To follow up patient progress

[] For research

[] Preparing for teaching of students

Others (please specify)……………………………

C. 8 Please indicate the frequency at which you utilise the library and the internet for the following reasons (1=Never 2=Less frequently 3=Frequently 4=More frequently

Reasons	Library	Internet
Personal (e. g. email and social networking)	1 2 3 4	1 2 3 4
Improve teaching of students/staff	1 2 3 4	1 2 3 4
Conducting research/report/article	1 2 3 4	1 2 3 4
Answering patients' queries	1 2 3 4	1 2 3 4
Improve patient outcome	1 2 3 4	1 2 3 4
Keep up-to-date	1 2 3 4	1 2 3 4
Continuing education	1 2 3 4	1 2 3 4
Answer colleagues' queries	1 2 3 4	1 2 3 4
Other (Please specify)	1 2 3 4	1 2 3 4

C. 9 To what extent do you agree with the following statements

1=Strongly agree 2=Agree 3= Neutral 4=Disagree 5=Strongly disagree

I feel overloaded with information	1 2 3 4 5

I usually need someone to help me find the correct information	1 2 3 4 5
I am satisfied with the information I can find on my own	1 2 3 4 5
I am willing to pay for the correct information	1 2 3 4 5
am aware of contemporary developments in the profession	1 2 3 4 5
I am aware of new information technologies in sharing information (e.g. Blogs, Wiki's, Facebook, twitter, etc.)	1 2 3 4 5
I am satisfied with the types of information services provided in the library	1 2 3 4 5
Information resources in the institution library is provided with ease of access	1 2 3 4 5
My information literacy competencies are enough to deliver my job roles	1 2 3 4 5

C. 10 Which of the following types information services are provided by your institutional library?

[] Reader advisory services

[] Reference services

[] Lending services

[] Audio-visual services

[] Internet search services

[] Online database services

[] Photocopying services

Others (please specify)……………………………

C. 11 Which of the following skills do you want to acquire for effective use of information resources in your institutional library? (**Tick** all that apply)

[] Catalogue use skill

[] Classification use skill

[] Computer literacy

[] Accessing the databases

[] Accessing the internet

[] Accessing the Medline materials

[] Use of print references

[] Other (Please specify)……………………………………………..

D. Information sharing

D.1 How do you share/ information in your job roles in your institution?

[] Face to face   [] By office phone   [] By mobile phone

[] My email   [] By sending letter/notes [ ] conferences/training workshops

[ ] research and publication [   ] organisation portal [ ] notice boards, etc

D. 2 What are the reasons for sharing information and/or collaborating with your colleagues? (Please **tick** all that apply)

[] To ask for second opinion

[] Discuss cases

[] keep up with trends

[] Consult for practical knowledge

[] To give second opinion

Other (Please specify)…………………………………………..

E. Challenges encountered by medical faculty while seeking, sharing and utilising medical information

E.1 which of the following has been a challenge for you while seeking, sharing and utilising medical information

[] Library not available in my institution

[] Library is available in my institution but remotely located

[] Inadequate resources in the institution library

[] Lack of information technology such as phone, internet, email facility to share/collaborate

with colleagues

[] Lack of time

[] Too much information on the internet

[] High cost of journal subscription

[] Inadequate financial supports from employer

[] Lack of skill to share/collaborate

[] Non-cooperation among colleagues to share/collaborate needed information

Other (Please specify)………………………………………………….

E.2 Do you agree that the aforementioned challenges have affected your professional performance?

[] Strongly agree [] Agree [] Disagree [] strongly disagree

E.3 Which of the following do you consider as inhibitors to accessibility to your institutional library? (Please **tick** all that apply)

[] Personal perception towards library use

[] Opening hours not convenient

[] Lack of skills on how to search health information

[] Frequent power cuts

[] Poor ICT infrastructure to access library

Others (Please specify)…………………………………………

F. Improving information Resources and Services

F. 1 Indicate your degree of satisfaction in utilising the following information resources, and services

Information resources/services/activities	Not applicable	Dissatisfied	Neutral	Satisfied
Library services	0	1	2	3
Accessibility to the internet	0	1	2	3
Communication with colleagues	0	1	2	3
Collaborating with other institutions	0	1	2	3
Attending conferences/workshop/seminar	0	1	2	3
Information sharing in daily/weekly/monthly meetings	0	1	2	3

F.2 What do you think would most help you develop and improve health information sources and services in your institution? (Please **tick** all that apply)

Provide library services

 [] Provide qualified library staff

[] Provide information search training for the faculty

[] Digitize all information resources in the institution for easy access

[] Improve collaboration with other institutions within and outside the institution

[] Improve information sharing among colleagues within and outside the institution

[] Improve library budget for collection of information resources

Other (Please specify)…………………………………………………….

Thank you,

Tunde Omopupa

Appendix 4 Interview Guide for Heads of Tertiary Health Institutions

Information Behaviour of Medical Faculty in the Tertiary Health Institutions in Kwara State Nigeria

Information provision for the medical faculty in your institution

Institution:

Designation of the head:

Gender:

Highest qualification:

Length of service in the institution:

Age bracket: 30-40 years 41-50 years 51-60 years 61-70 years

Size of the organization in terms of number of medical faculty:

What is your role in your position?

1. What is the mission and vision of your institution about library and information services?
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    …………………………………………………………………………………………
    ………………………………………………………………………

2. What is the place of library and information services in the organization structure of your institution?
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3. What   information   infrastructures   are   available   in   the   institutions?
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    …………………………………………………………………………………………
    …………………………………………………………………………

4. What information resources are provided by your institutions to medical faculty?
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    …………………………………………………………………………………………
    …………………………………………………………………………

5. What is the proportion of budget of the institution that is set aside for library and information services?
    …………………………………………………………………………………………
    …………………………………………………………………………………………
    …………………………………………………………………………

6. What capacity building plans are in place to ensure access to and use of information resources by medical faculty?……………………………………………………………………………… …… …………………………………………………

7. What information communication channels are available for information service delivery and sharing of information in your institution? …… …… …………………………………………………………………………..

8. What tools are available to medical faculty to access and use information services? …… …… …………………………………………………………………………

9. What is adequacy of information resources available to medical faculty? …… …… …………………………………………………………………………

10. Why medical faculty do use the information? …… …… …………………………………………………………………………

11. How are the information needs of medical faculty met in your institution? …… …… …………………………………………………………………………

12. How are medical faculty capacitated to make effective use of available information resources? …… …… …………………………………………………………………………

13. Does your institution have an information policy? If so what are the main aspects of policy? If not how is information services portfolio handled? ……………………………………………………………………………………………………… ……………………………………………………………………………………………………… …………………………………………………………………………..

14. How do you encourage information sharing among the medical faculty in your institution?

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15. To what extent does your institution provide training for library staff to enable them to enhance information services delivery?

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16. What are the challenges (if any) that are associated with information provision for medical faculty in your institution? How can such challenges in your opinion be resolved?

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Any other relevant comments

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………………………………………………

Thank you,

Tunde Omopupa

Appendix 5 Interview Guide for Medical Librarians in the Tertiary Health Institutions

Information Behaviour of Medical Librarians in the Tertiary Health Institutions in Kwara State Nigeria

A. *Medical Librarians profile and their roles in the tertiary health institutions*

1. Biographical information

Institution:

Designation:

Gender:

Highest qualification:

Length of service in the institution:

Age bracket: 30-40 years 41-50 years 51-60 years 61-70 years

What are your roles in your position?

…………………………………………………………………………………………………
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2. What are the distributions of professional and para professionals in your tertiary health institution   library?
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3. What are the qualifications, experience and designations of staff working in your tertiary health institution library?

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4. Describe the capacity building initiatives for the library staff in this institution?

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………………………………………………………………………………………………..

B. *Information provision for the medical faculty in your institution*

1. Do you have policies guiding the information services delivery in your institutional library? If so what are the main aspects of the policy? If such policy is not in place how do you manage the information services?

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2. What types of information sources and services do you provide in your institutional library?

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3. What are the information infrastructures available in your institution?

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4. What are the tools provided for accessing information by the medical faculty in your library?

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5. What are the information needs of the medical faculty in your tertiary health institution?

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………………………………………………………………………………………………………

6. What are the preferred information sources by the medical faculty in your tertiary health institution?

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7. What information searching and use skills do you provide for the medical faculty in your tertiary health institution including?

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8. *How do you encourage information sharing among the medical faculty in your tertiary health institution?*

………
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………

9. *Do you think library and information provision has enhanced the roles of medical faculty in your tertiary health institution? If so in which way?*

………
………
………

10. *Describe the frequency of library visit and information resources utilisation by the medical faculty in your tertiary?*

………
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11. *What are the relevant databases subscribed to by your institution library for the use by medical faculty?*

………
………
………

C. *Challenges of providing information for the faculty in the tertiary health institutions*

1. *What are the major challenges faced by your library in providing information services to the medical faculty in your tertiary health institution?*

………
………
………

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3. *Describe the adequacy of budget provision for your institutional library and how it has affected the provision of information in your tertiary health institution?*

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………………………………………………………………………………………………………

D. Practicable solutions to challenges for information provision in the tertiary health institution

1. *What solutions do you proffer to the challenges of information provision to medical faculty in your tertiary health institution?*

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2. *What do you think can be done at improving information utilization and sharing by medical faculty in your tertiary health institution?*

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………………………………………………………………………………………………………

Any other relevant comments

………
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……………

Thank you,

Tunde Omopupa

Appendix 6 Request for Permission to Access College of Health Sciences, University of Ilorin

UNIVERSITY OF
KWAZULU-NATAL

School of Social Sciences

Private Bag X01
Scottsville, 3209

Pietermaritzburg Campus
23rd September, 2013

The Chairman,
Ethical Review Committee,
College of Health Sciences,
University of Ilorin,
P. M. B. 1515,
Ilorin,
Kwara State

Dear Sir:

Request for Permission to Access the College of Health Sciences, University of Ilorin to Collect Data for PhD Research

I, Tunde Kamal **OMOPUPA**, a doctoral student of Information Studies, School of Social Sciences, University of KwaZulu Natal, UKZN, South Africa and a lecturer in the Department of Library and Information Science, University of Ilorin, Ilorin, Nigeria, writes to solicit for your consent to access the College of Health Sciences, University of Ilorin and collect data. My study is on "Information Behaviour of Medical Faculty in Tertiary Health Institutions in Kwara State, Nigeria". The questionnaire is to be completed by selected Doctors and Nurses who are involved in teaching, research and patients care. Any faculty who wishes to refrain from participating in the survey is obliged to do so. Permission is also sought to conduct an in-depth interview with management staff and clinical librarians in the tertiary health institution and observe medical faculty in their choice of information sources and skills for accessing information and information resources.

I would appreciate your cooperation towards completing the administered questionnaire, interview, observation and the research as a whole. The data obtained will be used solely for research work.

The study will identify the information needs of medical faculty in tertiary health institutions, seek to know how medical faculty express their information needs for meeting their job related roles in tertiary health institutions, investigate how medical faculty in tertiary health institutions seek, share and utilise medical information for teaching, research and patients

care. The study will further identify information sources available to the medical faculty in tertiary health institution and expose them to more relevant sources that will enhance their job roles. Problems encountered by medical faculty while seeking, sharing and utilising medical information will be brought to the fore and suggestions on how they can be overcome will be proffered at improving medical faculty job roles of teaching, research and patients care.

Kindly direct your further enquiries concerning this study to my supervisor, Prof. Stephen Mutula, (telephone +2773326055, email: Mutulas@ukzn.ac.za).

Thank you for your anticipated cooperation.

Tunde Kamal OMOPUPA

UNIVERSITY OF ILORIN, ILORIN, NIGERIA.
UNIVERSITY ETHICAL REVIEW COMMITTEE

Vice-Chancellor: Prof. A.G. Ambali
DVM (ABU), M.V. Sc., Ph.D (Liverpool, UK),
MVCN, MCVSN, MNVMA, FCVSN
Registrar: Mr. E.D. Obafemi
B.A. (Hons), Cert. Public Information (Kaduna),
MNIPR

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Our Ref: UIL/UERC/CLS/2015/005

Date: 18th February, 2015

Protocol Identification Code: UERC/CLS/005
UERC Approval Number: UERC/ASN/2015/022

INFORMATION BEHAVIOUR OF MEDICAL FACULTY IN TERTIARY HEALTH INSTITUTIONS IN KWARA STATE, NIGERIA

Name of applicant/Principal Investigator: OMOPUPA, Kamal Tunde

Address of Applicant: Department of Information Studies, School of Social Sciences, University of KwaZulu-Natal, Pietermaritzburg Campus, Scottsville, South Africa

Date of Receipt of Application: 09/01/2015

Type of Review: Full Committee Review

Date of full Committee Approval: 17/02/2015

Notice of Full Committee Approval

I am please to inform you that the research described in the submitted proposal has been reviewed by the University Ethical Review Committee (UERC) and given full Committee approval.

This approval dates from 17/02/2015 to 16/02/2015, and there should be no participant accrual or any activity related to this research to be conducted outside these dates.

You are requested to inform the committee at the commencement of the research to enable it appoints its representative who will ensure compliance with the approved protocol. If there is any delay in starting the research, please inform the UERC so that the dates of approval can be adjusted accordingly.

The UERC requires you to comply with all institutional guidelines and regulations and ensure that all adverse events are reported promptly to the UERC. No charges are allowed in the research without prior approval by the UERC. Please note that the UERC reserves the right to conduct monitoring/oversight visit to your research site without prior notification.

Thank you.

Ismaila Isah
For: University Ethical Review Committee

" ....if it's not ethical, it's not scientific, if it's not scientific, it's not ethical"

Appendix 8 Request for Permission to Access Kwara State College of Nursing and Midwifery Ilorin

School of Social Sciences

Private Bag X01
Scottsville, 3209

Pietermaritzburg Campus
24th September, 2013

The Provost,

Kwara State College of Nursing and Midwifery,

Ilorin

Kwara State

Request for Permission to Access the Kwara State School of Nursing and Midwifery,

Ilorin to Collect Data for PhD Research

I, Tunde Kamal **OMOPUPA**, a doctoral student of Information Studies, School of Social Sciences, University of KwaZulu Natal, UKZN, South Africa and a lecturer in the Department of Library and Information Science, University of Ilorin, Ilorin, Nigeria, writes to solicit for your consent to access the Kwara State College of Nursing and Midwifery, Ilorin and collect data. My study is on "Information Behaviour of Medical Faculty in Tertiary Health Institutions in Kwara State, Nigeria". The questionnaire is to be completed by selected Doctors and Nurses who are involved in teaching, research and patients care. Any faculty who wishes to refrain from participating in the survey is obliged to do so. Permission is also sought to conduct an in-depth interview with management staff and clinical librarians in the tertiary health institution and observe medical faculty in their choice of information sources and skills for accessing information and information resources.

I would appreciate your cooperation towards completing the administered questionnaire, interview, observation and the research as a whole. The data obtained will be used solely for research work.

The study will identify the information needs of medical faculty in tertiary health institutions, seek to know how medical faculty express their information needs for meeting their job related roles in tertiary health institutions, investigate how medical faculty in tertiary health institutions seek, share and utilise medical information for teaching, research and patients care. The study will further identify information sources available to the medical faculty in tertiary health institution and expose them to more relevant sources that will enhance their job roles. Problems encountered by medical faculty while seeking, sharing and utilising medical

information brought will be brought to the fore and suggestions on how they can be overcome will be proffer at improving medical faculty teaching research and patients care.

Kindly direct your further enquiries concerning this study to my supervisor, Prof. Stephen Mutula, (telephone 00273326055, email: Mutulas@ukzn.ac.za).

Thank you for your anticipated cooperation.

_____
Tunde Kamal OMOPUPA

Appendix 9 Approval Kwara State College of Nursing and Midwifery Ilorin

KWARA STATE COLLEGE OF NURSING & MIDWIFERY, ILORIN.

Motto: Knolwedge and Services

Telephone:
08033952605,
08155834306,
08131078672.

E-mail: info@kwscnmil.com.ng
admin@kwscnmil.com.ng

P.M.B 1506
Ilorin,
Kwara State,
Nigeria.

Ref No____KWS/CON/317/Vol.I/141____

Date:_____15th April, 2014

Mr. Tunde Omopupa
Department of Information Studies,
School of Social Science,
University of Kwazulu Natal,
South Africa.

RE-REQUEST FOR PERMISSION TO ACCESS YOUR TERTIARY HEALTH INSTITUTIONS TO COLLECT DATA FOR PH.D RESEARCH

I am directed to acknowledge the receipt of your letter dated 14th April, 2014; in which you sought permission to carryout medical research on information behaviour of medical faculty in our institution.

I hereby convey the College Management's approval to you to carryout the research. Kindly acknowledge the institution where necessary in the research.

Wishing you a successful research endeavour.

REGISTRAR
KW/ST. COLL. OF NUR/MID
ILORIN,
15/4/2014

Barr. Saka F. Kayode
Registrar
For: The Provost

Appendix 10 Request for Permission to Access the Kwara State School of Nursing and Midwifery, Ilorin

School of Social Sciences

Private Bag X01 Scottsville, 3209

Pietermaritzburg Campus

24th September, 2013

The Chief Medical Director,

Sobi Specialist Hospital,

Ilorin

Kwara State

Request for Permission to Access the Kwara State School of Nursing and Midwifery, Ilorin to Collect Data for PhD Research

I, Tunde Kamal **OMOPUPA**, a doctoral student of Information Studies, School of Social Sciences, University of KwaZulu-Natal, UKZN, South Africa and a lecturer in the Department of Library and Information Science, University of Ilorin, Ilorin, Nigeria, writes to solicit for your consent to access the Sobi Specialist Hospital Ilorin and collect data. My study is on "Information Behaviour of Medical Faculty in Tertiary Health Institutions in Kwara State, Nigeria". The questionnaire is to be completed by selected Doctors and Nurses who are involved in teaching, research and patients care. Any faculty who wishes to refrain from participating in the survey is obliged to do so. Permission is also sought to conduct an in-depth interview with management staff and clinical librarians in the tertiary health institution and observe medical faculty in their choice of information sources and skills for accessing information and information resources.

I would appreciate your cooperation towards completing the administered questionnaire, interview, observation and the research as a whole. The data obtained will be used solely for research work.

The study will identify the information needs of medical faculty in tertiary health institutions, seek to know how medical faculty express their information needs for meeting their job related roles in tertiary health institutions, investigate how medical faculty in tertiary health institutions seek, share and utilise medical information for teaching, research and patients care. The study will further identify information sources available to the medical faculty in tertiary health institution and expose them to more relevant sources that will enhance their job roles. Problems encountered by medical faculty while seeking, sharing and utilising medical

information brought will be brought to the fore and suggestions on how they can be overcome will be proffer at improving medical faculty teaching research and patients care.

Kindly direct your further enquiries concerning this study to my supervisor, Prof. Stephen Mutula, (telephone 00273326055, email: Mutulas@ukzn.ac.za).

Thank you for your anticipated cooperation.

_____
Tunde Kamal OMOPUPA

Appendix 11 Approval Sobi Specialist Hospital by Kwara State Ministry of Health

MINISTRY OF HEALTH

OFFICE: P.M.B. 1386, FATE ROAD, ILORIN, KWARA STATE. 031-220349

Our Ref: ___MOH/KS/ECI/777/58___ *Your Ref:*_____ *Date:* ___10/03/2014___

Mr. Tunde Kamal Omopupa,

(Department of Information Studies)

School of Social Sciences

University of Kwazulu Natal,

South Africa.

PERMISSION TO CARRY OUT MEDICAL RESEARCH TITLED:

INFORMATION BEHAVIOUR OF MEDICAL FACULTY IN TERTIARY HEALTH INSTITUTION IN KWARA – STATE

This is to convey the approval of the Ministry for you to carry out medical research as titled above and as itemized in your protocol.

You will please acknowledge the Ministry of Health by your Paper Presentations and Feedback to the Ministry on Conclusion of your research. This approval dates from 10/03/2014 to 10/03/2015.

Best wishes in your research project.

Yours faithfully,

F. O. P Oyinloye

Secretary Ethical Research Committee

For: Honourable Commissioner

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Appendix 12 Table for analysis of interview with the Medical Librarians in the Tertiary Health Institutions

Themes/Sub themes	Medical Librarian, College of Medicine, University of Ilorin	College Librarian, Kwara State College of Nursing
Gender, qualifications, designation and experience	"M", B.A., MLS, PhD 25 years on the job experience	"M", B.A. (LS), 6 years on the job experience
Medical librarian job roles	As medical librarian I am performing the administrative and professional roles and I am a member of the College of Health Sciences Board of Examiners. As an administrator I have to take decision concerning my staff career and welfare and I relate with the medical faculty at higher pedestal as colleagues and taking decisions that will take the College to higher fortunes	My roles as College librarian is to facilitate the work of the library, to manage human and material resources in the library and to recommend to the management the information needs of staff and students for them to take a look at it. My roles also include providing instructional education on how to maximally use the entire information infrastructure available in the college.
Categories qualifications, experience and designations medical library staff	There are three categories of staff in the medical library now, 1 professional, 3 paraprofessionals and 2 non-professionals.	We have one professional, 3 paraprofessionals, in total there are four staff in the college library. Other supporting staffers are one attendant and a cleaner.
	There are three categories of staff in the medical library now, professional who is a Deputy University Librarian, 3 paraprofessionals with diploma in library science	I hold a degree, all the other three have diploma in librarianship. I oversee the entire administration and professional operation in the library. I have worked for four years in the state library board

	and 2 non-professionals who have earned their degrees in other areas other than librarianship. Effort is in top gear to recruit more hand with science background with additional qualifications in library and information science into the medical library. There is one already given appointment letter but yet to resumed, he has background in biology but a degree in Library science. Such a staff will understand and be familiar with the language of sciences and improve information resources processing and services delivery in the medical library.	before been seconded to the College of Nursing Library. Our designations are one Librarian, three Library Assistants and other supporting staffers are one attendant and a cleaner.
Capacity building initiatives for Information access	As regards capacity building initiative that plays a great role and it is the for-runner of the medical library administration. This we are building through major training and attendance at conferences and workshops. The primary training in the sense that staff from other background will also be brought in and train as librarians by sending them to library schools to train as librarian. When they returned they will become subjects' librarians handling the College collection and other medical information for Clinical and Basic Medical Sciences. Staff that are on ground are been sent to workshops, there is one coming up soon at Bowen	The conditions of service in this institution allows us to apply for further study with pay and currently one of the paraprofessional staff is on study leave with pay for her Advance diploma in librarianship. I am also planning to apply for my masters' degree programme.

	University our staff will be there from 16th-18th of this month (March 2015) to acquired ICT knowledge, since it is now compulsory that no matter your degree you must be conversant with ICT knowledge. There is plan to introduce regular training session on regular basis involving medical faculty.	
Policy guidelines, Information service delivery	Ours is a place where thing are working properly with standing policy and policy guidelines that support the institutional mandates. It is a policy of the medical library that every title that comes in here must be accessed with full descriptions with the location mark and accession number. All these when accessed is sent to the entire medical faculty so that they will know that so and so materials are now in the library. There is synergy between the library and departments on their faculty member's information needs and information provision. Now that we now have ICT driven in the information services we are now redrawing our information provision policy.	Yes we have policy guiding the information services delivery in this institution. If there is no library or qualify officer there is no College. Because the regulatory body for the College which is the Nursing and Midwifery Council of Nigeria stated it clearly that without a library meeting up there standard the college will not be accredited to run her programme. And if the college is already accredited the library at any time fall below the standard required accreditation will be withdrawn by the regulatory body.
Types of	Now, the medical	Generally our services are manual

information sources and services	information consumers required information basically let me say primarily on their discipline and clinical aspects of their job. Though we have cloud system now such information must exist in one format or the other either in book format or electronic format to be able to extract information. But secondarily, medical faculty also requires information for self-development out of their medical faculty mandates of teaching, research and patients care. In other to get these sources because of the application of ICT we don't want you to leave the comfort of your room before you can access, hence we have subscribed to databases and deployed them online for the use of medical faculty. The institution library is online and can be access anywhere in the world on www.library.unilorin.edu.ng for easy access of medical information with our subscribed databases.	in this library like charging and discharging of books, reference and reading services within the library. We also subscribed to Newspaper and Journals. Because our collections are not that large we only borrow a book to a student at a time for three days now. The total volume of books in our collection now is 1740 books.
Information infrastructures	We have a café dedicated to the medical faculty and their students, there is e-library that is serving the entire university including the medical faculty and recently the medical e-library was commissioned. There is plan in the pipeline to erect and	We are now extending the library by clearing a space where we intend to turn to a computer section through which we can serve the medical faculty with automated library services in order to increase information and improve the available information infrastructure in the College. The College has an

	new spacious and befitting medical library in the current year university budget that has been approved by the council. The new medical library will be equipped with state of the arts modern library facilities.	internet café that serve the medical faculty but the place is not directly under the library, it is called the ICT unit. The library and the internet café remains the only information infrastructure available now for the use of medical faculty in the college. As soon as we take delivery of our computers we will network them for seamless information services in the library, we have plan for a bigger library building too.
Tools for accessing information	Currently the College of medicine is being served with dedicated internet service with an IT officer in charge and the library services are available online. Apart from the ICT facility there is plan for tele-conferencing and automated charging and discharging for information services in the medical library. The library services are available on the internet and intranet.	The only tool we have for accessing information by the medical faculty is our manual catalogue that is arranged according to the subjects of our collection.
Information needs	The advent of computer is gradually eroding the traditional medical faculty information needs and we are now planning a multimedia section to replace the audio-visual section. Most the information needs of medical faculty reside in the medical databases and journals. Since	The medical faculty information need centered on the courses they are teaching and practical subjects. Sometimes they come to read newspapers

	e-book has replaced the traditional books, subscription to databases afford medical faculty access to medical books electronically.	
Preferred nformation sources	The preferred information sources by the medical faculty are basically electronic information because of its portability and convenience of use.	The only information source we provide now is majorly textbooks and journals, but the medical faculty always complained that we need to improve by adding ranges of services like the electronic library services within the library.
Information searching skills and use training	Online tour of the university has just been done and it will be mounting on the university website soon to provide one touch guide on how to use the medical library facilities by the medical faculty and it will soon be launched. It will form user education for medical faculty on how t search information and it will provide other information navigation skills for the medical faculty other users.	I used to orientate them on how to increase their searching skills by asking term to read the index of a book to know if the book has the topic they are looking for and the location page.
Information Sharing among faculty	Institutional repository is being planned for staff publications on the university website where medical faculty can share	Because of my interaction with them, sometime most of them have the book. I will just refer them to the owner of such book, other than that I use to direct them the State

	and utilise research output of their colleagues without hindrance. By senate approval it has become law, the repository will arranged knowledge by knowledge and heading by heading. Library staff will be trained to process them before uploading to conform to international standard.	Library Board which I know they have enough books on nursing.
Information provision and utilisation among faculty	Yes sure information provision has enhanced faculty roles if you observed the way the medical faculty are been promoted you will know that they have made breakthrough in their job roles. The advent of online library services has eroded the frequency of medical faculty library visits but occasionally they do visit the library. From interaction with the faculty, they now access the library online and utilize its resources remotely. The virtual library is there and we have other databases that have been subscribed to include Science direct, Medline, EBSCO and the NUC virtual library. All these can be access for use by the medical faculty remotely.	Yes, the provision of information by the library has enhanced the job roles of the medical faculty in this college because they use to attest to this. Before there was no library to provide them with reading and studying space not to talk of few available books that we have in our collection. The medical faculty does visit the library frequently to utilise the information resources but the library opening hour is 8 am to 4 pm weekdays only while some medical faculty want to stay longer than that to study in the library. We are yet to subscribe into any database but there is plan on the ground now.

Challenges of information provision	Apart from the normal budget constraint, space is the major problem of the medical library in this institution. Funding is another major constraint because with regular and enough funding we can easily overcome the problems of space and others.	Our collections are still very small compare to the roles and the number of medical faculty we are serving, the library space is also small and close to where we have regular noise coming from outside that disturb the convenience of the library. Some our books are dated and when the medical faculty complain I use to recommend to the management and sometime they respond immediately or pending it.
Library budget	Unfortunately, no library in Nigeria now is getting the required budget. By regulation 10% of University annual allocation suppose to go to the library we call it library development fund (LDF). But for some years now it has stopped, it use to come from the National University Commission NUC to the library accounts but for some years now that has stopped. We now relied more on TETFUND by making money available and select materials you want to acquire and send to budget for approval.	We don't have library budget provision for the library but we always make request to the management for our needs. And I use to encourage the college management to improve on library spending.

Solutions to information provision problems		More funding channels should be made available to the library to meet	There should be regular budget for the library to take care of the library

	the increasing information demands of the medical faculty. The statutory budget allocation should be paid directly to the medical library account with medical librarian having independence of spending it at meeting the demand of information provision to medical faculty. Collaborative research works among medical faculty will improve information sharing and utilisation among them. Availability of online information will ease and eliminate the barriers associated with information sharing and utilisation among medical faculty.	needs and it should make available to the librarian. The library should move to more spacious location that can accommodate more library services and patrons. Library opening hour should be extended till late evening and weekends. More qualified staff should recruit to support the intended services extension in the library and introduce shift for the staff. Database and more journals can be access more if the library is automated and connected to the internet. The management should be encouraged to organize workshops on how to improve information utilisation and

		sharing for the medical faculty in the college. We have done it once but it should be regular. The library should be added to the college website and the library resources should be linked online for the medical faculty to access remotely. The online library resource will stimulate networking and improved information sharing and utilisation among lecturers.
Other relevant comments	I wish you success in your studies.	The college management should produce staff directory through which individual tutor can be reach for their information needs.

Appendix 13 Table for analysis of interview with the Head of Tertiary Health Institutions

Themes/Sub themes	Dean Faculty of Basic Medicine University of Ilorin, College of Medicine	Provost, Kwara State College of Nursing	Chief Medical Director Kwara Specialist Hospital Sobi Ilorin
Profile	"M", Professor, 20 years on the job experience, 41-50 years old, number of medical faculty	"M", Masters in Nursing Science, 25 years on the job experience, 51-60 years old, number of medical faculty 60.	"M" Fellow of Medical College of Pathology, 22 years in medical profession, 41-50 years old, number of medical faculty 7.
Roles of medical faculty	Academic and administrative head I am in charge of all academic activities in the faculty, am in charge of student's welfare, I represent the vice chancellor. Therefore, I am the chairman of all faculty committees. I chair the faculty academic board, faculty postgraduate board, faculty board of studies and I am a member of the College of medicine academic board.	I am performing the roles of Head of academic and administration of the College	Administrative and Medical Head

Mission and vision of institution about library and information services	We all align with the university wide mission and vision at training graduates with global standard through acquisition of knowledge that is supported by library and information services that is firmed backed to meet with the world standards. Ours is a mission and vision for a teaching and learning environment which is very condusive.	The extant law that established the College gave prominence to the mission and vision of the college as a center for the training of Nurses and Midwives that can compete favorably with other professionals of their peers all over the world. Apart from the law everybody knows that information is very vital in any organization. First and foremost in our law it is paramount that information must be provided for the running of the institution and it must flow from the top to the bottom and from bottom to the top more often it should be written so that it can't be denied, it is well embedded and it must be followed to the letter.	There is non, because we don't have functional library.
Place of library and information services in the organization structure in your institution	The role of information cannot be over-emphasized; it is in the tripod mandate of the University. In the area of research we all know that the	Actually, we have a regulatory body known as Nursing and Midwife Council of Nigeria. Apart from the fact that this is a	We only have a reading room with furniture and books

world is now a global village and before you can conduct a good research you must do a lot of what they call literature review, some of these literature review materials are not readily available in the hard copies. So we need to go online to find as much materials as possible in terms of literature reviewing on the statement of problem. Another thing is that we use the library a lot because within the library, we have some basic medical books and statistical books in the library to which their designs are for teaching of which information is very very important. The way we communicate and pass the content down to students is very very important, of course we use the library, we use oral tradition or history that people passed the history to us and we planned to learn from their experience and pass it to students in terms of learning.

In term of community service it is very important, we must reach to the community and we use

higher institution, library is very very important and very vital it is there in the law that without the library they should never give any College accreditation. Not even having a library you must have a qualified librarian at least with a first degree in Library and Information Science it is clearly stated. Other things that are supposed to be there in the library are well stated which we are following.

	various medium of information to get to the community. As a university we are community based and experience oriented that is why we have COBES, the students get to the community to live in the community, diagnose the health problems of their host community with aim of providing help to the health problems of the community and come back to report in term of submitting a written report to us. We compiled both the video and audio report and send to the Kwara State House of Assembly for legislation on certain health matters.		
Available information infrastructures in the institutions	Apart from the library here we very lucky to have about three types of information infrastructure here, we have the hardware library and we have the e-library. The hardware library is divided into to, we have the basic medical science library and we have the clinical sciences library. Like I said	Actually, we have a regulatory body known as Nursing and Midwife Council of Nigeria. Apart from the fact that this is a higher institution, library is very very important and very vital it is there in the law that without the library they should never give any College accreditation. Not even having	Non

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| | supplemented with the e-library with about 50 laptop computers networked and connected to the internet, apart from the library with good volume of books with new and latest collection acquired late last year and this year. We have access to radio and television because of our position at monitoring what is going on in the world. Particularly, Unilorin FM radio station that transmits regular happenings in the university and her environs. We also have access to about ten other radio stations locally, we also use newspapers are supplied to our offices on daily bases.

We are also linked on telephone voice services for information access, utilisation and sharing that is supported with sms facility services as well as the social media services like facebook, twitter and other social media platforms. | a library you must have a qualified librarian at least with a first degree in Library and Information Science it is clearly stated. Other things that are supposed to be there in the library are well stated which we are following. | |

Resources provided for medical faculty information needs	Thank you very much, the university is closely knitted and we have various sections in charge of different functions, though we don't create databases but we subscribed into some databases through the central administration of the library through which information resources are provided to support the actualization of the university mandates. The uniformity of subscription is to cut cost and eliminate duplication of efforts. For example if you talk about the library we have a database in the library that consists of all the projects, theses and dissertations within the university in a database mounted by the library. We have the database for e-book it is kept by the library but we can access all these through our link on the university website.	To a large extent, to a large extent in the sense that it is important to the lecturers too and to the students, because getting information is very vital and even for the pattern that the Nursing Council set their questions. It is on current issues they usually anchored on that is why the lecturers and the students have to be current through the use of library, internet in the College and other things. It is very vital they utilise information resources provided in the College. We also have a café that is being manned by Easyband Consultancy.	We only have a reading room
Proportion of budget for library and information services	Funding and budgeting for the institutional library and information services are done	Though we have little funding that takes care of library purchases. But we make good	We don't have a budget allocation; we are directly

	both central and in the units within the university. Budget for internet connectivity is from the central library. However, things like budgeting for radio, television and newspaper is borne by the faculty of basic medical science.	use of it to attract the most important information resources that are needed. We don't have a particular funding being allocated to the library but we respond to the exigencies of the library needs from time to time. to the best of my knowledge I know that certain percentage are being allocated for College library but not regular.	under the ministry of Health
Capacity building plans in place to for access and use of information resources for medical faculty	The capacity building initiative is done by the library by coming to the faculties and departments to train us. Then we try to do that at the faculty level when we have new staff who are young lecturers we try to introduced them to the information facilities within the faculty. So there is what we call faculty orientation for the new lecturers by introducing them to information facilities and we invite a library staff to come and talk to them on how to use the library, the use of internet and	We are doing that through seminar conferences and our Librarian too also collect information from medical faculty when they returned from Seminar and conferences outside the college and disseminate to the College lecturers and students. Staffers are usually encouraged to buy information materials particularly books when they travel for training and conferences and the college will reimburse them. We are complying with all the ICT	We only send our staff the University of Ilorin Teaching Hospital for residence so that they have access to use of information resources. There is no programme on ground now.

| | | the relevant databases to assist them in their career. Through training and provision of enabling tools like computers and free access to the university subscribed databases the medical faculty are capacitated to make effective use of available information resources in the institution.

There is a university unit called Centre for Research Development and In-house Training (CREDIT) that is saddled with regular training of staff on innovative issues including latest information apart from the library regular training programmes.

Medical faculty uses information for teaching, research and community | requirements for information access and provision because of the regulatory body that we have, whether we like it or not because they regularly come here to check often and often. So every time also access our readiness and make sure our faculty is accessing the internet resources. Medical faculty is regularly updated on the use of ICT generally.

The college provide training for the faculty on how make effective use of information particularly the electronic information. We regularly invite trainers from outside and sometimes the college librarian provides this service at least once in an academic session.

Medical faculty in this college makes use of information for both personal and official functions. These include practical conference, teaching, research and patient care and observation. Other use of information by the Tutors in | |

		this college is for personal development like when they are furthering their education to obtain higher or professional qualifications.	
Available communication channels for sharing information	Yes, we have channels through which information are shared among the medical faculty. One we have the Postgraduate board in the faculty all PG theses for example goes to the PG board and it is passed to the faculty ethical review committee. The committees and Boards in the departments are the major communication channels through which sharing of information take place.	Even though this is a tertiary health Institution that is full of practical that we call practical conferences where information are share among medical faculty in the presence of students as part of their training especially after visits to hospitals and other medical facilities. During the practical conferences, opinions are shared and critique to correct what is correctable. At least this is done on quarterly basis (four times in a year). Personal collections are also usually shared among medical faculty. We also have a symbiotic relationship with hospitals and whenever we go there we note patient case found and disseminate to other faculty for the improvement of healthcare	We use social media for information communication and this are personal to the staff doctors

		delivery system. Actually we have a policy that any spectacular research or discovery by any faculty we do publish it. During medical tour to the hospital we use to share them with the matron and other medical personnel too.	
How inf. Sharing is encouraged	We do open defense system in this institution whereby people are invited to listen to the dissemination of research output, through that information is shared. Again we have faculty research manager who functions as links between the various research groups, he is in charge of looking for external collaboration and grants available information to research groups.	Just like I told you earlier on that we use to have a forum where we share experience with colleagues, it is called practical conference. Lecturers are encouraged to share their field and research experience with each other's. Personal collections are freely shared among the lecturers. During departmental and school meeting vital academic information are also shared among the tutors.	Information sharing among medical faculty is encouraged through seminar and ground round.

Tools available to access and use information services	Catalogues, computers, internet and telephone are major tools for accessing and use of information in the university Ilorin.	We have a dictionary catalogue that contained the holdings of the library and usually updated by the librarian. There is future plan to host the electronic catalogue on the college website and also to provide other means as suggested by the librarian.	We use phone and personal computers with internet
Adequacy of information resources available	We will not say information resources are adequate but we have structure on the ground in the University of Ilorin. We have plan, structure and strategies but the main challenge is the infrastructure to support all these is the problem. For example medical faculty need to have their own personal computers other than the one in their offices and in the library. Other problem is the ratio of staff to the facility in the library with more volumes of book and bigger sitting spaces. I will want teleconferencing facility. We are	Most of the materials in the College library are sufficient for our lecturers to teach. Like I told you the regulatory body for college always emphasized on this. Collection of books and journals are mostly adequate and we are planning to subscribe into electronic resources too. When the college librarian assumed office I asked him to make a list of needed resources for the library than ran into a million naira or thereabout and I asked him to prioritize them for my	This is depending on personal efforts; some of our staff uses to go to the University of Ilorin Teaching Hospital Library too to gather information.

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	not doing badly, but we are trying our best because information provision and availability is the backbone of academia.	approval.	
Meeting information needs of medical faculty	The information needs of medical faculty are effectively met through different sources like the medical library and the university main library with professional library staff that provides range of services. The university wide internet services also allows the medical faculty access to their needed information from anywhere on campus, even you can sit in your and browse the net. Apart from the above mentioned, the university websites can be access remotely from anywhere in the world at meeting the information needs of medical faculty by accessing the e-resources like books and	Whenever the Librarian make request for additional information resources for the library, we look at the request at the management level and give it attention depending on our purse by then. We make sure that suggested titles by the faculty to the library are equally given attention in our library purchases be it books, journal or electronic copies of information resources. Compulsorily the Librarian must retire is purchases to the management because we have both internal and external auditors that are monitoring our spending.	The medical faculty makes do with the reading room by collecting key and returning it back to the officer in charge.

	journals on the university subscribed databases		
Information policy in the institution	As a policy we have rules and regulations guiding the use of information by the medical faculty particularly graphics and pornographies, we try as much as possible to control through the application of password to access and use information	The college information policy is as enshrined in the law establishing this college and others as spelt out by the regulatory body like the Nursing and Midwifery Council of Nigeria.	We don't have any information policy
Training for library staff at enhancing information services delivery	The current University librarian was the pioneer medical librarian and I am sure he has achieved his PhD through the University staff development programme. Others members of the library staff are beneficiaries of such gesture through the progressive institutional planned capacity building. More often than not we always carry the library staff along in all training programme to support the medical faculty at achieving the	Currently we have a transferred staff from the State Library Board who is a qualified librarian, as I earlier mentioned before we use to have a library officer as you know that Rome was not built in a day we are hoping that in the future we are going to have College Librarian with bias for medical information services. Other categories of staff in the college library are one	No library and library staff here now

	university mandates of teaching, research and community engagements. And I think this has impacted in the library staff at enabling them at enhancing the information services delivery in this institution. It is also important to note that the entire library staffers both junior and senior are trained in the arts of computer driving information services.	Librarian I, three assistant librarians out of which one is on study leave with pay for his Diploma in library science. Our library staffers are usually integrate to all our in-house seminar, conferences and training programmes. Efforts are in place to sponsor others library staff for further studies in librarianship	
Challenges and solutions to information provision in the institutions	Well, all these challenges of poor and slow internet, space in the library and erratic power supply are there and we are doing our best to eliminate those challenges as far as we can. The problem of manpower is also there because we the library is not a 24 hour library, we need the library opening hours to be extended. The library needs uninterrupted power supply with dedicated alternative power source and the sitting capacity	The major problem is funding. With money we can do a lot of things. I believe this one also will become a thing of the past because last week I was at the state house of assembly for budget defence and if all things pushed forward are approved there will no problem. Because we all know that information in this institution is very vital it can mare and makes the institution. We don't have	No library, no library staff. Virtually there is no information infrastructure. We don't have library staff but we are encouraging the Ministry of health to give us a befitting library, staff and fund it.

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| | will be extended too. We need a video-conferencing and research commons where discussion can take place without disturbing other users that are not involved in the discussion. In medical education video-conferencing and group discussions are very important.

More library sections need to be created such as reference and reserve unit to allow rare information resources more readily available in the medical library. You can imagine the number of medical faculty and the volume of library books. I want to see the library subscribing to more current journals and recent published books. If it is possible the internet access should be extended to various part of the community so that faculty can access the wifi services in their homes, because you may need to work from home without necessarily coming to the office. | problem with the lecturers using the library because about currency most of our library materials are current. | |
|---|---|---|---|

Any other relevant comments	The library staff should work more closely with the medical faculty by involving them in their in house training and designing of more personalised library services	Thank you for choosing our institution for your research	We would like you to avail the Ministry of health with the outcome of your research to bring some improvements to the hospital information service delivery

Appendix 14 Table for analysis of interview with the Head of Department in the Tertiary Health Institutions

Themes/ Sub themes	Head of Department of Anatomy, College of Medicine University of Ilorin	Head of Department of Medicine, College of Medicine University of Ilorin	Director of Nursing, Kwara State College of Nursing, Ilorin	Head of Dept. Training, Kwara Specialist Hospital Sobi Ilorin	Deputy director Nursing Kwara Specialist Hospital Sobi Ilorin	Head of Dept. Family Medicine, Kwara Specialist Hospital Sobi Ilorin	Head of Dept. Obstetrics and Gynaecology, Kwara Specialist Hospital Sobi Ilorin
Profile	"M", PhD, 10 years on the job experience, 41-50 years old, 21 medical faculty	"M", Professor, 20 years on the job experience, 41-50 years old, 20 medical faculty	"F", Bsc Nursing Science, 30 years on the job experience, 51-60 years old, 60 medical faculty.	"M", Consultant orthopaedic Surgeon, 4 years on the job experience, 41-50 years old, 7 medical faculty	"M", Bsc Health Education/ Nursing, 15 years on the job experience, 5160 years old, 103 medical faculty	"M", Fellow west African College of Physician, 4 years on the job experience, 41-50 years old, 7 medical faculty	"F", Fellow West African College of Obstetrics and Gynaecology, 4 years on the job experience, 41-50 years, 7 medical faculty
Roles of medical faculty	As head of the dept it is my responsibility to see to the day to day running of the dept and to see that all activities of administration, teaching,	I am a Professor, researcher, Consultant in cardiovascular diseases and teach undergraduates and postgraduates	My role is more of managerial than teaching since I assumed office as director of Nursing and to see that the environment is condusive for teaching and	Training of junior, interns, research and hospital management	My roles include administration and medical services that include supervision of nurses on duty and drawing roaster for their schedules. Also	I oversee the accident and emergency and general outpatients department as well as the HIV clinic.	Medical Consultant and I also perform the roles of training the house officers and overseeing medical officers

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	research and patients care are coordinated seamlessly and you will aware that the University work on three tripods of research, teaching and community services.	students in the classroom and at the bedside.	research.		to manage the smooth running of Nurses on duty		
Mission and vision of institution about library and information services	The mission and vision of the university wide is to produce world class graduates who can compete favourably with their peers elsewhere in the area of Anatomy. And that is why information services play a pivot role in the staff lives to meet up with the	The main mission and vision of this institution is to train and equipped medical students with all the needed knowledge at promoting healthcare and defend the core mandates of medical practice. This is not limited to our students but	The mission and vision of this institution about library and information services is to support the institution to fulfil its goal of becoming a world class institution for the training of nurses and midwives through teaching, research and patients care.	No particular vision and mission, but we aim to train doctors at becoming experts that can perform both nationally and internationally through the imbibing of best medical practice premised on knowledge acquisition through institutionalized	The institution aimed to serve its mandates through a knowledge based with standard and up-to-date library and information resources	Nil	None

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	university mandates.	the lecturers also must keep and sustain the mandates of teaching, research and patients care		library and information services.			
Place of library and information services in the organisational structure of the institution	Library and information is playing a pivotal role in the organizational structure of this institution because the rate at which knowledge is being generated only an institutionalized library and information services can assist academic institutions to reap the dividend of knowledge in this age. Moreover, the	The library and information services is quintessential in the academic role of any university and indeed any tertiary institution, it is a fact that any university is what is the quality of it library. If the library is bad, take it that the quality of that university is bad, because library is where and dig out the information and	According to the Nurses and Midwife Registration Council of Nigeria, a college like this must have a standard library with standard books, if of this we are striving to meet their standard through priority of library and information services within the organizational structure of the college.	Well, the place of information and library services cannot be over-emphasized because we need the information sources for doctors to get information in order to improve their services. Surely information plays an important role in our medical tasks.	As at now there is no library here but a reading room. The plan to have a good library in this institution depends on the government making available adequate funding for the library and other information services that will enhance the job roles of staff.	We only have a reading room, because it is not equipped so we cannot call it a library	For update and research

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	University Librarian is a principal officer of the institution in the recognition of the service unit he is occupying.	knowledge you want to impart on the people and put to their head, so if the library is bad the quality of teaching and research will be bad.					
Available information infrastructure in the institution	Well, we have both the structure and the electronic information. The structure is in form of physical library with books and other resources that are made available and updated from time to time; we also have electronic information resources like	To this extent one can say that the information infrastructure in the University of Ilorin is still evolving, though still far from perfect but we are moving by the day. Many medical books are heavy and heavy books but with digitisation and ICT it makes	According to the Nurses and Midwife Registration Council of Nigeria, a college like this must have a standard library with standard books, if of this we are striving to meet their standard through priority of library and information services within the organizational	There is no information infrastructure in place in the hospital but I have my own laptop with internet subscription that I bought with my money to improve my job roles.	We only have personal information facilities to smoothen our services and we are not receiving any reimbursement for using them, all the information infrastructure in this are not functional. For example we have intercom but it not	We only have a reading room that is not staff at all.	Personal computers and subscribed internet services

	the e-library and skill acquisition library where still can acquire various vocational skills. In our institution library particularly the medical library there are books and non-book materials and in the e-library the library subscribed to medical databases like Pubmed, Medline, Hinari, Jstor and all of that. You will agree with me that not all academic staff is competent in the use of ICT.	things easier but they are now available in a small CD or even download into your flash drive or your I-pad to read later. And now University now has Wi-Fi all over the campus now, my recent interaction with the director of COMSIT revealed that the university wide connection will be implemented soon. Unlike in those days when you have to carry the big medical books around, nowadays it is easier to access information	structure of the college.		working		

		that will assist you in your teaching and research, all you need to do is to Google it. These days as the lecturer is talking in the class the students are confirming it. And they are able improve their notes to make it richer than what the lecturer is dictating.					
Resources provided for medical faculty information needs	Information needs of medical faculty are met in this institution through extended library opening hours and online information	Books are the major information resources that the medical faculty still found most reliable because of the associated	We only have books, journals and internet access in the college internet café that are currently serves as information resources for the	We only have a reading room and Television in the nurse bays and doctors rest rooms to provide current information for the medical	The reading room though stocked with books that are arranged on the shelf with chairs and tables. But it has not reach the level we	No information resources except the dusty books in the reading room	None

		service.	challenges we have with the internet use for information provisions. There are few databases purchased for the use of the faculty but the associated problems of access formed an impediment.	medical faculty in this college now.	faculty.	can call a library.		

Proportion of budget for library and information services	Yes, the university do have a statutory budgetary allocation of 10% of her annual budget allocated to library development every year aside other grants and TEFUND funding coming to the library every year.	I think 10% from govt allocation and TETFUND fund for the university is mandatory for library development. International donor agencies need to invest in the information infrastructure in the medical libraries because the real way to emancipate the people is through education.	We don't have a specific budget for our library but all the things that our librarian needs are usually approved once he passed them to the management. Recently the librarian sold the idea of e-library to the management and immediately we gave him a nod.	No specific budget is set aside for library and information services in this institution.	No budget provision for library services now.	Zero budget for library and information services.	None to the best of my knowledge
Capacity building plans in place for accessing and use of information resources	There is CREDIT Center for Research Development and in House Training	Current plan is not enough as it is irregular and haphazardly handled,	We train and retrain our tutors regularly and it is compulsory for	We regularly have seminar, ground round and bedside discussion	Through seminar in the various department of the hospital on	Nil	None

| for medical faculty | in the university that collaborate with the library to train staff on regular basis on how to access and use information resources. | departmental libraries if established will bring information access and use closer to the medical faculty for convenience and increase awareness. | them to attend the training sessions. | teach and ensure training of junior doctors. Monthly seminar in the department is the major capacity building plan to ensure access to use of information because junior doctors and even seniors doctors are audited there on their experiences. Last year we wrote to the parent ministry to help us expand the reading room and expand it to a standard for the use of our postgraduate | weekly and sometime monthly basis information are provided on new innovations and discoveries | | |

				students.			
Available communication channels for sharing information	After my laboratory information communication channel is next in the line of role as an academic with seven PhD candidates, 6 master students and 10 undergraduate under my direct supervision apart from teaching in the class. All these serve as information communication channels through which I deployed my ICT skill to reach them using internet, phone and other computer devices.	Randomly, we communicate through internet tools of e-mail and social networking. Only few of us still understand other communication channels like the blog, although erratic power supply and slow internet is the clog in the wheel of progress here. Can you imagine that manual and traditional communication channels are still in use for information service delivery and sharing in this institution?	Memo, phone call and sms are the information communication channels that are available for information service delivery and sharing of information in the college now.	We use memos, voice calls and sms on phone as information communication channels for information services delivery and sharing of information in this institution.	I use my personal phone to communicate with the staff under my office since I have directory of nurses in my office. Sometime I send sms but often than not I make voice call but some staff might not pick my number.	Well usually write memo and in the event of emergency we send sms or phone call on our personal mobile phones. Though, we have clerical officers and messengers who run mails in the hospital.	Personal and individual channels

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	We need to move to the next level.						
How information sharing is encouraged among medical faculty	Through regular seminar and practical meetings medical faculty are encouraged to present their research findings to their colleagues using PowerPoint facility that are available in the classrooms and seminar rooms so that others can share and critique them.	Yes because I have platform through which I share information with people and I believe other medical faculty have similar arrangement too. As a head of a research group I have young colleagues that usually work with me across the table which I have the moral burden to put them through by sharing information with them so that in the nearest future they can also attain the professoriate.	Our lecturers are encouraged to share information formally and informally through seminar and workshops. Also through personal interaction and exchange of personal collection and ideas the nurse tutors are encouraged to share information.	The good thing about medical practice is the inculcating of team work in the training and this continue with you especially if you work as academic physician. So the team work naturally encourages information sharing among medical faculty to a large extent.	Through personal interaction and mostly through weekly seminar in the departments, for example I am a psychiatric nurse and I use to give talk in my department during the weekly seminar and my colleagues even from other departments will come and contribute.	Information sharing is encouraged among medical faculty through seminar and bed side discussion and teaching.	Information sharing is encouraged among medical faculty through and during ground round and seminars. Medical faculty is encouraged to get good book and browse the internet.

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		Other ways through which information is shared among the medical faculty is when junior faculty consult you with their needed information or medical solutions and you have the moral burden to assist them. During weekly ground round we also contribute and share experiences. Postgraduate students who are colleagues are also helped to navigate their ways by sharing personal collections and experience with them. There is a proposal I submitted to the University last					

		week on medical one stop shop where people can go and get help through information sharing with faculty from various disciplines.					
Tools available to access and use information services	There are traditional library information search tools of catalogues of various type and online searching tools that makes information access and use very for the medical faculty. In the medical library there are networked dedicated computers for searching the	We often use the catalogue that is available in the library or index, because now you can now search online and download your request.	There is catalogue that is arranged according to the subjects in the library that is currently serves as tool to access use information in the college library since our computers are not networked to interact.	There is staff directory for information sharing and to make phone calls	There is non	Nil	None

	catalogues and entire library collections.						
Adequacy of information resources available	Fantastic and very adequate, information resources available are adequate I only encourage my colleagues to make maximum use of it.	Not adequate, both the human and material resources are not adequate compare to the standard required for medical faculty and has been made available in other places in the developed countries.	The information resources available are very adequate for the medical faculty to meet their job needs	Very poor	Information resources in the Sobi Specialist Hospital is inadequate	Information resources are inadequate.	None
Meeting information needs of medical faculty	Information needs of medical faculty are met in this institution through extended library opening hours and online information	Compare to the minimum requirements and how information need is been handled elsewhere, meeting information needs	Depending on individual strive for knowledge; the college is doing her best to meet the medical faculty information	No, but our proposal to the parent ministry include establishment of e-library and internet facility.	We are still planning to the information needs of the staff; it is not yet met now.	We use personal internet subscriptions and personal collection of books mostly.	The information needs of medical faculty are met through the use of personal internet service, clinical updates and seminars

service.	of medical faculty in my institution is not encouraging. The whole apparatus of information services need to be reviewed to meet up with the expected standard and requirements of a medical school library.	needs demands through the provision of information resources and condusive library environment				
Information policy in the institution	Yes in this institution or academic are required to have a good collection of information resources in the library to meet up and sustain the condition for accreditation continuously. This is a standing policy that is	Yes, medical education curriculum has now introduced ICT and other information related courses and topics to assist in the teaching and research of medical education. It is compulsory for my institution to	As at now there is no laid down information policy, because no library no school of nursing.	No specific policy statement, maybe in the nearest future.	No	No, we only handle our information services portfolio personally.	I don't know, even if it is there am not aware. And if the policy should be put in place it should encompass provision of up-to-date books and internet services.

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	sustained.	implement it as a policy, through this e now create a synergy with the information services and the library at exposing medical faculty and students to various aspects of medical information. Specific hour are allocated for this purpose and training sessions are arranged throughout the departments. Information is power because you rule the world through the sharing and utilisation of information in medicine. Especially now that you can carry some volume of information in an					

		handheld device without feeling the heaviness of the information loaded.					
Training for library staff at enhancing information services delivery	Library staff are regarded as power house of the university as such there capacity is given a pride of place when it comes to capacity building by sending then to refresher courses, postgraduate studies in the areas of information and library science. Also the management use to sponsor them to their professional related conferences, seminars and	In some cases the technical know of medical librarians are limited. They need to be exposed to modern information services delivery for medical faculty to meet their mandates of teaching, research and community services. Particularly some of the old and senior hands are conservative when it comes to providing information services. Some of them lack the needed	We always encourage them to go for further studies but we don't send two staff at a time not to paralyze the activities of the library. Presently one of the library staff is on study leave. We do send them to conferences, seminars and workshops too. This has really helped them as they come back with new ideas.	Maybe when we have, but now we don't have library staff at all.	We don't have library staff	There is no library staff.	No library staff here now

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		workshops.	wherewithal to perform. So, from time to time our librarians must be task to attend training programme both locally and internationally to be at tune with their pals in other parts of the world. The University of Ilorin is going in the right direction at allowing librarians to attend conferences and postgraduate programmes at exposing them to recent innovation in information services and provision to enhanced productivity.	Those	Our greatest	We can only	The hospital has	Lack of up-to
Challenges and		Power and	My personal					

solutions to information provision in the institutions	deployment of ICT are the major challenges and can be overcome through the injection of more funding.	challenge is that the internet service is not fast enough, I was using 30% of my salary to access internet before the University internet service was install, internet services must be fast enough for research accomplishment. The medical library must subscribe to many more databases that are very important. The library space must be developed to accommodate more patrons' particularly senior medical faculty like professors, it must be attractive enough for people	challenges we have now are related to collection, opening hour, space, ventilation, illumination among others. We are planning to relocate the library to a new location with all the necessary facilities. The library is now sharing wall with our practical room that could be noisy.	challenge now is the erratic power supply because the personal information tools we have are limited in their utilisation by power failure. The use of generator to power the hospital is very costly. Information provision will be better with hospital providing internet and other information infrastructure.	overcome the information provision challenges only when we have information infrastructure like library and the internet services	no information infrastructure on the ground; we have a long way to trek.	date library, absence of ICT facility Lack of internet services No computers even at records department

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		to go there and sit down to do their research. The library opening hour must be flexible to reflect the research standing of the medical school, where the medical faculty can walk in and work round the clock.				
Other comments	Thank you	Nil	Nil	I hope the outcome of this work will get to our parent ministry for upgrading of our hospital library.	I believe this study will bring to the fore the problems of information provision on this hospital.	Nil	No structure on ground for information provision

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Appendix 15 ISRAEL 1992 SAMPLING MODEL

Table 1. Sample size for ±3%, ±5%, ±7% and ±10% Precision Levels Where Confidence Level is 95% and P=.5.

Size of	Sample Size (n) for Precision (e) of:			
Population	±3%	±5%	±7%	±10%
500	a	222	145	83
600	a	240	152	86
700	a	255	158	88
800	a	267	163	89
900	a	277	166	90
1000	a	286	169	91
2000	714	333	185	95

Source: Israel, G. D. (1992). Determining sample size.