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TOPIC: INFORMATION NEEDS AND SEEKING BEHAVIOUR OF HEALTH PROFESSIONALS AT KALINGALINGA CLINIC.
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DEDICATION

This report is dedicated to God almighty our creator, our strong pillar, our source of wisdom, knowledge and understanding. He has been the source of our strength throughout this program and on his wings only we have soared. We also dedicate this work to our parents who have supported us all the way and whose encouragements have made sure that we give it all it takes to finish that we which we started.

Thank you our parents. Our love, respect and appreciation for you all can never be quantified. God bless you.
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ACRONYMS

AIDS: Acquired Immune Deficiency Syndromes
CHO: Churches Health Organization
HCPs: Health Care Professionals
HIV: Human Immunodeficiency Virus
HP: Health Profession
ICT: Information and Communication Technology
IT: Information Technology
MOH: Ministry of Health
NP: Nursing Practitioners
OAUTH: Obafemi Awolowo University Teaching Hospital
UNZA: University of Zambia
US: united States
USAID: United States Agency for International Development
UTH: University Teaching Hospital
WIFI: Wireless Fidelity
ABSTRACT

Information is inevitable in the health profession. The need to become informed and knowledgeable leads to information seeking behaviour processes which is important among qualified health professionals who have vital roles in achieving health goals of a given country. However, in Zambia little is known about information needs of health professionals as a result it might be difficult to assemble and provide current information that is relevant for taking care of patients. Therefore, the general objective of this study was to assess information needs and seeking behaviour of health professionals at Kalingalinga clinic. The study used a case study research design and qualitative data was collected using semi structured interview guides. Purposive sampling was used to select a study sample of 15 health professionals to participate in the study. Thematic analysis was used to analyze qualitative data from the 15 respondents. It was found that health professionals usually consult colleagues when seeking information due to few ICT facilities and recent text books at the clinic. The technology often used were smart phones as it was easy to search using smart phones. However, slow internet was a challenge due to lack of Wi-Fi at the clinic and funds to purchase bundles. It was recommended that the clinic needs more ICT equipment to improve the performance of various departments and training health professionals on computer technologies in order to impart them with skills on how to operate various ICTs.
CHAPTER ONE: INTRODUCTION

1.0 Overview

This study will assess the information needs and seeking behavior of health professionals at university of Zambia clinic. This chapter covers the introduction to the study, background, statement of the problem, research objectives and research questions. The chapter also provides, justification of the study, ethical considerations, key definitions and summary of the chapter.

1.1 Introduction

Information is inevitable in the health profession. The need to become informed and knowledgeable individuals is important among qualified health care professionals (HCPs) who have vital roles in achieving health goals of a given country (Pakenham and Bukachi, 2009). The understanding of information needs and information-seeking behavior of various professional groups is essential as it helps in the planning, implementation and operation of information system and services in the given work settings (Devadason and Lingam, 1997). The working environment and type of task performed by individuals shape their information needs and the ways they acquire, select and use this information. In addition, updating knowledge with relevant information is very important for health care professionals to deliver quality and sustainable health care services to their patients. This is possible only when there is a sustainable access to information resources in health facilities (Ghebre, 2005). Furthermore, Access to information facilitates the use of new medical technologies, proper handling of the necessary medical procedures and treatment of patients. Proper information management brings health workers to act harmoniously in a similar manner on medical and health practice (Dubow and Chetley, 2011).

An information need arises when an individual senses a problematic situation or information gap in which his or her internal knowledge and beliefs and model of the environment fail to suggest a path towards the satisfaction of his or her goals. On the other hand, information seeking behavior is the purposive seeking of information as a consequence of a need to satisfy some goal. Information needs is therefore defined as an individual’s desire to locate, obtain and utilize information to satisfy a conscious or unconscious need. It is the expression used in a wide range
of ways to refer to any context where information is sought and it represents all forms of information seeking behavior (Taylor, 1962).

Information seeking behavior involves personal reasons for seeking information, the kinds of information which are being sought and the ways and sources with which needed information is being sought. Wilson (1996) defines Information-seeking behavior as the totality of human behavior in relation to sources and channels of information, including both active and passive information-seeking and information use. Information needs and seeking behavior by health professionals embraces a pattern of information resource use, time spent searching, barriers to information searching and information searching skills. The development of knowledge among health care providers is dependent on continuing access to relevant, reliable information through effective cooperation and flow of information among all stakeholders involved in the provision and use of information.

1.2 Background

It is a global challenge for health professionals to scrutinize their practices and provide healthcare informed by current scientific knowledge. The capacity to provide evidence-based practice is one of the core competencies all healthcare professionals should possess in order to meet the needs of the 21st century healthcare system. In developing countries, many health professionals have little or no access to basic, practical information. Many rely on observation, advice from colleagues and building experience empirically through their own treatment successes and failures (Garcia, 2010).

Lack of information creates situations that produce medical errors which are common in health facilities. Such situations have the potential to cause miss-diagnosis, wrong treatment, increase multi drug resistance, severe injury and unexpected patients death (Dubow and Chetley, 2011). A study by Davies (2007) in developing Countries such as Zambia revealed that several factors such as cost, past success, accuracy, reliability, comprehensiveness, usefulness, currency, response time, accessibility, technical quality and format influence information seeking behavior of health professionals (Davies, 2007).

In the last decade, some important steps have been made towards meeting the information needs of health professionals but remarkably little progress has been achieved in meeting the information needs in the developing world. This disparity is due to factors such as unequal
distribution of Internet connectivity and there is too much information due to information explosion as well as too many sources making it inefficient to access needed information and difficult to evaluate credibility of sources. There has been a remarkable lack of attention on understanding and addressing the needs of existing health workers themselves, and how they might be better supported to deliver safe, effective care. The information and training needs of health workers are fundamental (McCredie and Rice, 1999).

Therefore the aim of this study is to investigate the information needs and seeking behavior of health professionals at Kalingalinga clinic. Kalingaliga clinic was built in 1987 and it comprises of medical doctors, clinic officers, nurses, pharmacists, nutritionists and laboratory technicians. It is a government owned institution running under the Ministry of Health (MOH) with the help from donor fund organizations such as the United States Agency for International Development (USAID) and Churches Health Organization (CHO) which helps with the supply of medicine and laboratory equipment. The main objective of Kalingalinga clinic is to offer service to residents of the compound so that they do not travel long distances to reach the nearest clinic or medical center. The clinic strives to tailor its services in a way that meets the expectations of all its clients. In line with the Zambian Ministry of Health mission, Kalingalinga clinic endeavors to ensure that services are convenient, acceptable, and accessible and are as close as possible to the community being served.

1.3 Statement of the problem

Organizations and libraries have developed extensive databases and services that are being used by health professionals such as nurses, clinic officers, pharmacists and laboratory technicians to access health information. Recognizing the need for information, University Teaching Hospital (UTH) through the University of Zambia (UNZA) School of Medicine, Medical Library and the UTH School of Nursing Library provides information to nurses and other professionals. Due to the advancement of technology, the internet is one way which offers novel tools for providing information to health professionals and exploratory search through the use of search engines makes it easier to find information online. Despite all these advancements in technology and libraries, little is known about information needs of health professionals. Reviewed literature confirms that few studies have been carried out in the past to ascertain the needs of health professionals to enable them perform the noble role in caring for patients. However, there is little
that is known about information needs of health professionals as a result it is difficult to assemble and provide current information that is relevant for taking care of patients. A review of the literature reveals that no comprehensive study on the subject in Zambia has been done. This study, therefore, seeks to fill the void in this area.

1.4 Research Objectives

1.4.0 General objective

To assess information needs and seeking behavior of health professionals at Kalingalinga clinic.

1.4.1 Specific objectives

1. To establish information needs of health professionals at Kalingalinga clinic.
2. To determine technological factors that influence information seeking behavior of health professionals at Kalingalinga clinic.
3. To assess the challenges faced by health professionals at Kalingalinga clinic when seeking information.

1.4.2 Research Questions

1. What are the information needs of health professionals at the Kalingalinga clinic?
2. What are the technological factors that influence information seeking behavior of health professionals at Kalingalinga clinic?
3. What are the challenges faced by Kalingalinga health professionals when seeking information?

1.5 Justification for the Study

This study provided key insight on the information seeking behavior of health professionals and their information needs in health care delivery. The study also provided useful information on key factors influencing information seeking behavior among the health professionals. Furthermore, the results would be useful for other medical, science and technology libraries in the country in evaluating and reorienting their collections, services and facilities. The results and accompanied recommendations would provide useful lead to initiatives for addressing identified gaps, challenges and opportunities for improving information seeking behavior among the health professionals. The study also contributed to the available research and knowledge on health care services for documentation, further research and reference.
1.6 Ethical Consideration
During the research, the researchers ensured to follow all the necessary ethical considerations. Hence, the risks and benefits to participate in the study were clearly explained to all the participants. The participants were made to understand that there would be no physical, psychological, social or professional risks associated with their participating in the study. The researchers upheld the confidentiality of all the participants. The records of the study were kept private. In any sort of report that might be published, the researchers would not include any information that would make it possible to identify a participant. Research records were stored securely and only researchers had access to them. Participation in the study was voluntary. The decision of the participants to participate or not did not affect their current or future social professional security in the institution. If they decided to participate, they were free to not answer any question or withdraw at any time without forcing them.

1.7 Definition of key terms
- **Information need**: This is an individual’s desire to locate, obtain and utilize information to satisfy a conscious or unconscious need (Taylor, 1962).
- **Information seeking behavior**: This is the purposive search for information as a consequence of a need to satisfy a goal (Wilson, 2000).
- **Health information**: These are facts or data that health professional need to enable them identify and treat certain diseases. It may include curative and preventive information (Ghebre, 2005).
- **Health professionals**: Health professionals are medical doctors, clinic officers, pharmacists, Nutritionists, laboratory Technicians and Nurses who are specialized in diagnosing, treatment and prevention of health related problems and are mandated to handle client’s medical data (McCredie and Rice, 1999).

1.8 Summary
This chapter discussed the administrative background of the study. The introduction included the importance of understanding information needs and information-seeking behavior of health professionals. The chapter also illustrated the problem that led to the researcher undertaking this study. With regard to the stated problem, the study formulated objectives and research questions that were used to guide the researcher. Also discussed in this chapter
is the justification of the study, ethical considerations and definition of key terms which lead the study to chapter two which discusses empirical studies on the information needs and seeking behavior of health professionals.
CHAPTER TWO: LITERATURE REVIEW

2.0 OVERVIEW
The purpose of this chapter was to review relevant literature on health professionals’ information needs and information seeking behavior. The review that was covered included literature on information needs of health professionals, technological factors influencing information-seeking behaviour of health professionals and challenges health professionals face when seeking information.

2.5 Information needs of health professionals.
Cogdili (2003) studied information needs of nurses’ practitioners in Kenya using two phases of data collection. The initial phase of data collection was the administration of a questionnaire to three hundred Nursing Practitioners (NP) who were asked to report their experience of needing information, as a result of patient encounters as well as their experience of seeking information. The second phase of data collection entailed a series of interviews with twenty (20) NPs after encounters with patients to collect data on instances of information needs and information seeking. Results of this study indicate that Nursing Practitioners most frequently need information related to drug therapy and diagnosis in that order.

Chiware and Dick (2008) conducted an investigation of information needs of health professionals, information seeking patterns and health information services for nurses, clinical officers and pharmacists in Namibia. The study ranked information needs of health professionals as information on outbreak of diseases, new remedies, scientific research, general information and information about how to prevent or avoid contracting HIV/AIDS from patients. The results showed that 99.5% of the respondents need information on outbreak of diseases, 99% need new remedies and nursing processes while 98.5% need results of scientific research. The study further revealed that respondents need general information and information about how to prevent or avoid contracting HIV/AIDS from patients.

A study conducted by Akhu-Zaheya (2004), found that health professionals need information about diseases, diagnostic procedures, treatment side effects and daily living activities. The demand for health information needs by health practitioners depends mainly on work roles and tasks they perform regularly such as diagnosis. The most expressed need for information among health care providers is primarily to answer the client’s questions. The study further revealed that majority of the health professionals are unaware of the knowledge gap thus making librarians to
decide for them or assume that health professionals only need information related to clinical work and not for other reasons.

Ajayi and Akiniyi, (2004) conducted a study on information needs of primary health care workers in selected Local Government Areas in Nigeria, aimed at identifying the information needs of health workers. A stratified random sampling of 263 primary health care workers was used. 120 nurses, 80 midwives, 50 public health officer, 8 doctors and 5 pharmacists. The result showed that 205 (77.9%) of the respondents needed information on Severe Acute Respiratory Syndrome (SARS), 197 (74.9%) needed information on HIV/AIDS, 121 (46.0%) on management of patient and breast feeding, 117 (44.5%) on the Tele medicine, 85 (32.3%) on education and training and 46 (17.5%) on research purposes.

Ajayi (2005) conducted a study to assess the information needs of health professionals. The study was conducted at Obafemi Awolowo University Teaching Hospital (OAUTH) in Nigeria. The research design employed the survey method and questionnaires were used to collect data from the respondents. 120 questionnaires were administered to nurses, 20 questionnaires to doctors, and 7 questionnaires to pharmacists. The result showed that majority of the nurses (120 or 95.2%) needed information to keep up to date, 114 or 90.5% needed information for managing patients, 95 or 75.4% of the nurses need information for supporting diagnosis medical doctors on the other hand needed information for solving clinical problems (12 or 85.7%), managing patients (11 or 78.6%) and keeping up to date (10 or 71.4%) majority of the pharmacists 7 or 100% needed information on supporting diagnosis, acquiring new drugs, and undertaking research respectively. The study further revealed that health professionals obtained a lot of information needed from their fellow colleagues and friends.

2.2 Technological factors that influence information seeking behavior of health professionals

A study by Davis (2007) on factors that influence information seeking behavior of health professionals revealed that some of the factors that influence information-seeking behavior include online resources or information technology (IT), followed by search and basic IT skills and relevant materials. A lot of health professionals are seeking information about an illness online, an emerging condition among others with a view of meeting their information needs. Internet is one of the most used resources to provide health information each day. The findings revealed that communication technologies have permeated virtually every area of the healthcare
delivery system. This can be seen through health professional to patient email exchanges, electronic records, access to laboratory results via the Internet, text messaging reminders and the use of iPhone applications that allow you to have quick access to pertinent health information. Gorman and Clayman, (2009) carried out a study on factors that influence information seeking behaviour of clinicians in a semi-urban town in South India and found out that many clinicians used internet for information seeking. The study shows that 74% of the respondents surveyed had access to computers with internet. The study further showed that internet enables health professionals to have access to information sources such as Essential Health Links, African Index Medicus, Bioline International, PubMed Central and Directory of Open Access Journals as they are freely available on the Internet. In addition, the study showed that internet influences seeking behavior of health professionals because it is usually perceived as a fast way of getting health information, confirming the information provided by physicians or finding alternative treatments. Internet enables health professionals to appreciate the possibility of checking and comparing information on different websites. Internet is an ideal media for getting health information as searches can be done at any time, repeatedly and confidentially. The confidentiality prevailing on the Internet means it makes it easier for health professionals to get information on sensitive or psychological problems.

Koh and Wan (2014) conducted a study on how smartphones and tablets influence information seeking behavior of clinic officers and nurses in Bayelsa State, Nigeria. The quantitative design was adopted for the study using questionnaire as the main instrument for data collection from a population of 50 clinic officers and nurses. Data collected were analyzed using tables, frequencies and simple percentages. A total of 46 out of the 50 questionnaire returned was found useful for data analysis showing 92% rate of response. The study revealed that smartphones and tablets influenced information seeking behavior due to medical applications as they were perceived by health professionals to have helped to improve their clinical decision making, saved time, allowed faster access to national clinical practice guidelines, allowed faster access to common laboratory reference values. Smartphones and tablets also helped in making differential diagnoses, enabled useful medical related calculations, allowed faster access to reliable sources of medical knowledge, allowed faster access to reliable sources of clinical skills, allowed accurate medicine dosages calculation and allowed easier medicine dosages calculation and allowed faster access to evidence-based medical practice.
Brooks (2006) studied how emails influence information seeking behavior of health professionals and the study used the survey research design. A survey of over 4000 United States (US) physicians reported that nearly two-thirds (64%) were using email to seek health information from other health professionals. The findings show that email influence information seeking behavior of health professionals as email communication creates a valuable access to outside opinion, since it allows low-cost communication of photographic images and provides links to websites with the appropriate forms and a list of notifiable diseases. Email communication is routinely used by health professionals to communicate within and between institutions about a range of issues from diagnoses to logistical issues. Messages can convey multiple topics and can be sent to several recipients. The study also revealed that US healthcare settings use emails as a device to remind patients of appointments or as a method of reinforcing health promotion advice. Health professionals communicate via email for varying purposes such as scheduling meetings and providing a service that allows clients to email healthcare questions to health professionals. Emails influence information seeking of health professionals as the information that is sent by other health professionals is internet information that has been validated and it allows health professionals to direct their colleagues to sources of information on the internet that they find helpful.

2.3 Challenges faced by health professionals when seeking information.

Tumwikirize W, (2009) undertook a mixed-methods study in which he used questionnaires and an interview guide to determine the challenges health professionals face when seeking information in teaching hospital in Uganda. Lack of time to study and a distinct preference for asking an expert colleague were reported to be barriers when seeking information. Staff may be unable to leave their clinical area to visit a library or to use computers elsewhere due to lack of time and as a result practitioners are pressed to use research findings without extra time being made available to read and appraise research papers. The study also revealed that health professionals may experience conflict between using the Internet and providing clinical care since nurses do not have time when on duty to read knowledge-based information from any source, electronic or hard copy.

Chambers (1991) conducted a small-scale observational study of hospital nurses in Indina identified blocking or limiting access to the web as challenges faced when seeking information. Hospital policies and procedures have preference of intranet packages thereby limiting access to
certain websites and in some cases discouraged the use of the web from clinical units. The study found that 30% of respondents reported access limited by sites being blocked and password requirements due to hospital computers filtering system as the most important perceived barriers to seeking information. The study further revealed that apart from actual blocking of web sites, the internet speed was slow and access to computing facilities were restricted for nursing staff. In addition, the study showed that barriers arise when managers discourage internet use, either explicitly through blocking wide access across the organization or more often by not fostering a supportive environment in which people feel they can use the medium freely.

Forsetlund and Bjorndal (2002), conducted a study In Norway, the study conducted a series of focus groups, observations and interviews of public health clinicians. The study revealed that the information seeker’s preferences, prejudices, self-evaluation of knowledge and skills, interests and knowledge of the subject are all potential psychological barriers to seeking information needs. Forsetlund and Bjorndal reveals that while the practitioner may have recognized an information need, she or he still may not act on that need because of the perception that the information may not be found. The study further reveal that lack of access to evidence-based resources (full-text journals, bibliographic databases) as a barrier to information-seeking. Electronic resources are perceived as being less accessible than colleagues hence do not seek electronic resources but only consult colleagues. However, clinicians may also be unaware of information resources available to them that are potentially of value, despite diligent marketing efforts on the part of health information specialists. They may even lack an awareness of the importance of research evidence for their practice. Perceptions of lack of access may be related to the poor Internet and bibliographic database searching skills that are typically reported and lack of information literacy training opportunities available.

Nwokedi and Adah (2009) in their study on information needs of health care providers in Jos, Plateau State, Nigeria observed that inadequate library resources and physical facilities in health care libraries are challenges to seeking information. The other challenge noted was the lack of adequate information searching skills which lead to not finding the information they need for taking care of patient and research purpose. The study further observed that libraries lacked resources such as current text books on different topics, computers with internet facilities and adequate funding. It was therefore, recommended that the health care libraries should be supplied with current textbooks taking into consideration to include different topics when acquiring
information resources as to cover the needs of all health professionals. The study further recommended that Plateau State Government should install computers in the health care libraries with full Internet services for health professionals in order to help them to keep abreast with the latest trends in their fields of specializations.

Stinson and Mueller (1983) studied the Information habits and needs of Alabama health professionals through a questionnaire. The study shows the relationship between health professionals and use of various sources and their type of practices. The study also shows challenges faced when seeking information. Stinson and Mueller found out that lack of reading culture is a barrier to seeking information by health professionals. Lack of reading culture which they explained as being intensified by the working environment, which keep a health professionals in a single role for the whole time and finds no need of reading more. The health professionals consider working for a long duration as expertise than continuously reading from various sources of information for further improvement and performance in the field of practice.

The study also identified the lack of time as another serious challenge encountered by health professionals in course of smoothly accessing health information. The researchers observed shortage of time especially during data collection where by health professionals failed to fill the questionnaires, an instance which forces the researchers to add extra days to accommodate all of them. The health professionals were very busy all the time handling many duties due to scarcity of the staffs in all departments in all districts hospitals. Also few number of the health professionals who visited internet facilities reports that they have no enough time to surf for various stuffs they needs in running their tasks appropriately. The purpose of this study was to determine challenges, roles and information source preferences for health professionals.

Charles (2005), conducted a study on Information-seeking behavior and use of information resources by clinical officers. This study identified that lack of access to a computer among health care providers as a great hindrance for them to access electronic resources and hence it’s a barrier to seeking information. This result depict that some of the health care providers were having knowledge on how to use a computer but due to poor infrastructures and scarcity of ICT facilities in most of the district’s hospitals, they fail to access the recent health information on electronic sources and just relies on other sources such as books and colleagues.

The study also revealed that in rendering services to the clients, health care providers consults their colleagues more frequently than textbooks significantly. The work environment and
infrastructure in place are probably the main cause of this reliance on colleagues than other sources because in the district hospitals, there were no enough ICT facilities and very few recent textbooks, hence colleagues were opted as the immediate relevant source of health information to health care providers. However according to this findings dependency on colleagues may be very risky especially if a colleague misdirects another, the third part (patient) will suffer the consequence.

2.4 Research gap

In reviewing the research literature, it has been observed that a lot of studies on information needs and seeking behavior of health professionals were done in US, Nigeria, Namibia and Ghana. In addition it was also observed that research literature on information needs and seeking behavior of health professionals is scarce. No comprehensive study on the subject in Zambia has been done. This study, therefore, seeks to fill the void in this area.

2.5 Summary

This chapter reviewed past studies and documentations on information needs of health professionals, technological factors that influence information seeking behaviors of professionals and challenges faced seeking information by health professionals.
CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Overview
This chapter describes the methodology that was selected and used in the study. The methodology includes the research design, population of the study, sample size and sampling procedures, the instruments for data collection, the methods for data analysis and summary of the chapter.

3.1 Research Design
In order to assess information needs and seeking behavior of health professionals at Kalingalinga clinic, the study employed case study research design. A case study was ideal for this particular study as it brings out facts and insights about the topic under investigation. This approach is appropriate when the focus of the research is on a contemporary phenomenon with a real life context. Through the use of case study design a researcher can apply a lot of methodologies and rely on a variety of sources to investigate a research problem. Additionally, case studies are also helpful in bringing up in-depth insights of the study.

3.2 Population of the Study
The target population for this study consisted of medical doctors, clinic officers, nurses, pharmacists, nutritionists and laboratory technicians who worked at Kalingalinga clinic. The total population of health professionals at Kalingalinga clinic is 83.

3.3 Sample Size
The sample size comprised of 15 out of 83 health professionals encompassing medical doctors, clinic officers, nurses, pharmacists, nutritionists and laboratory technicians at Kalingalinga clinic. This was because a small sample is cost effective and time serving. Additionally, data from a small sample was easier to analyze and interpret.

3.4 Sampling Procedures
The purposive sampling procedure was used to select respondents amongst medical doctors, clinic officers, nurses, pharmacists, nutritionists and laboratory technicians who work at Kalingalinga clinic. Purposive sampling was the deliberate choice of an informant due to the qualities the informant possesses. It is a non-random sampling technique that does not need underlying theories or a set number of informants. The researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue
of knowledge or experience. Purposive sampling was ideal because respondents are selected based on the researcher’s knowledge about the study and population. Purposive sampling was suitable for the study because it is deliberately selective and biased and as such, it helped come up with non-random samples that reflected a specific purpose of the study. It was also an efficient method when it came to selecting rich informants that were necessary for an in-depth study (Bryman, 2008).

3.5 Data collection Instruments

3.5.1 Interview guide

Data was collected using an interview guide. This entailed having an in-depth interview with the respondents with a set of questions already prepared. The motive behind the use of an interview is that an interview is a faster way of collecting first-hand qualitative information direct from these respondents. Questions were easily understood by the respondents as they were presented by the researcher and where the respondents were not clear, clarity was sought. The interview guide enabled the respondents to provide more detailed information pertaining to the research topic.

This study used semi-structured interviews with open-ended and closed ended questions to collect data from medical doctors, clinic officers, nurses, pharmacists, nutritionists and laboratory technicians. The choice of a semi-structured interview rather than a structured interview was that it was less formal for the interviewer and it explored issues that emerged by further asking follow-up questions while still covering the same areas of data collection (Bell, 2010).

3.6. Data analysis.

The data collected from the study was analyzed using thematic analysis which emphasizes on pinpointing, examining and recording patterns or themes within the data. The responses were analyzed by organizing and breaking down large bodies of information into themes. These themes were the categories for analysis. The data was then examined with particular interest in identifying implicit and explicit ideas within the data and getting a general sense of what the data as a whole will contain. Further, the data was integrated and summarized by offering propositions in order to give a clear picture of the subject matter. The data was then typed in Microsoft Word and presented in the report (Gorman and Clayton, 2005).

3.7 Summary of the chapter
Chapter 3 described the research design and methodology underpinning the study. It also discussed the rationale for selecting the chosen research method, the population, data collection methods and the data analysis procedures that were used. The population was described and the use of purposive sampling technique was justified and the sample size is 15 participants. The data of the study will be collected using the qualitative method namely an interview guide. The chapter ended with a brief discussion of the analysis of the data.
CHAPTER FOUR: RESEARCH FINDINGS

This chapter presents the findings of the study that sought to analyze information needs and seeking behaviour of health professionals at kalingalinga clinic.

The results of the investigations are presented under the following main themes: information needs of health professionals; information sources which health professionals consult when faced with an information need; technology respondents use to obtain information for their work and how it influences their seeking behaviour; challenges respondents face when seeking information; suggested measures to overcome the challenges. The findings presented in this chapter are based on responses from health professionals at kalingalinga clinic. Responses were collected by the use of semi-structured interviews.

4.1 Background Characteristics of Respondents

In relation to the respondents’ profession, 2 where clinic officers, 2 doctors, 3 laboratory technicians, 3 nurses, 2 nutritionist and 3 pharmacists formed of the sample. In relation to work experience clinic officers on average have worked for 3-4 years, doctors 2-3 years, laboratory technicians 3-5 years, nurses 1-5 years, nutritionists 3-5 years and pharmacists worked for 4-10 years.

Table 1: Demographic data of respondents

<table>
<thead>
<tr>
<th>Value</th>
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<td>2</td>
</tr>
<tr>
<td>Doctors</td>
<td>2-3 years</td>
<td>2</td>
</tr>
<tr>
<td>laboratory technicians</td>
<td>3-5 years</td>
<td>3</td>
</tr>
<tr>
<td>Nurses</td>
<td>1-5 years</td>
<td>3</td>
</tr>
<tr>
<td>Nutritionists</td>
<td>3-5 years</td>
<td>2</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>4-10 years</td>
<td>3</td>
</tr>
</tbody>
</table>

4.2 Information needs of health professionals

When answering “What are the specific areas of your information need?” 2 doctors said, *they needed information on patient management and clinical decision making*. According to them, the information comprises basic information about patient’s medical history, diagnosis and treatment
choices. The respondents further said in order to provide better treatment to patients, they need latest clinical information. In addition, and the sampled doctors stated that they needed non-clinical information for research and managerial work. Furthermore, 3 of the pharmacists needed information on supporting diagnosis, acquiring new drugs and undertaking research. In addition, one pharmacist said he needed information to **constantly update his knowledge and improve his working skills**. 2 of the nutritionists needed information on how to prevent and manage specific diseases. They further stated that they needed information on some diseases that need to be managed such as cardiovascular disease and diabetes. In addition they stated that they needed information on special diets, health care and how to create nutritional programs based on health needs of patients.

3 of laboratory technicians needed information on patient’s diagnosis and treatment by performing laboratory tests in haematology, immunology, microbiology and testing and recording blood bank inventories. In addition, the respondents needed information for patient’s diagnosis and treatment by performing laboratory tests in toxicology and parasitology. 3 of the nurses asserted that they needed information on patients’ care, improved medication administration and better job performance. Furthermore, respondents needed information on new discoveries in nursing and how to prevent themselves from contracting HIV-AIDS from patients as well as information on the outbreak of diseases.

Furthermore; 2 of the clinic officers stated that they need information on diagnosis and disease treatment. They also needed information on patient care and educating patients on the importance of taking the right medication for a particular disease. Furthermore, respondents said that information is needed for professional curiosity and further research on other things that will benefit them in order to serve patients better.

In relation to information needs of health professionals, the study also explored the sources that health professionals at Kalingalinga clinic used to attain the information and the results were as follows: 7 of the respondents use medical text books, medical journals, and clinical manual protocols, while 5 obtained their needed information from colleagues and senior staff. One respondent said as I quote, “I rarely use internet to get key information regarding my work because even if I want, there is no connectivity. I find it easy to consult my colleagues within my profession especially my workmates because they are easy to access, reliable and saves time.
However, when need arises, I consult manuals and protocols.” In addition, 3 respondents used the internet to get key information regarding their work, (table 2).

Table 2: information sources

<table>
<thead>
<tr>
<th>Value</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colleagues</td>
<td>7</td>
</tr>
<tr>
<td>Internet</td>
<td>3</td>
</tr>
<tr>
<td>written literature</td>
<td>6</td>
</tr>
</tbody>
</table>

4.3 Technological devices used in obtaining information

When answering the kind of technological devices used to obtain information, 5 people asserted that they used computers while 6 people used mobile phones and finally 4 people used tablets (figure 1).
To answer the question “Do technological factors influence your information seeking behaviour?” all the respondents answered “yes” to indicate agreement that technological factors has influence on their information seeking behaviour. Therefore; the reasons were that 8 used them for easy searching of information, 3 for easy retrieval and 4 used them for learning about current trends in their field of work, (table 3).

Table 3: Reasons for using technological devices

<table>
<thead>
<tr>
<th>Value</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>easy to search</td>
<td>8</td>
</tr>
<tr>
<td>easy retrieval</td>
<td>3</td>
</tr>
<tr>
<td>used for learning</td>
<td>4</td>
</tr>
</tbody>
</table>

4.4 Challenges respondents face when seeking information

When answering challenges faced by kalingalinga clinic health professionals, 3 of the respondents said gathering information from electronic sources is very difficult than from print materials. 4 of the respondents said slow internet was a challenge. 3 of the respondents said they have no access to updated medical books. In addition, 2 of the respondents said technology is advancing, most of the information is on the internet and the professionals who trained some years ago may not be conversant with new technology. Furthermore, 3 of the respondents said that the institution does not have enough computers to accommodate all the health professionals (table 4).
Table 4: Challenges respondents face when seeking information

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gathering information is very difficult</td>
<td>3</td>
</tr>
<tr>
<td>Slow internet</td>
<td>4</td>
</tr>
<tr>
<td>No access to updated medical books</td>
<td>3</td>
</tr>
<tr>
<td>Not familiar with new technology</td>
<td>2</td>
</tr>
<tr>
<td>No enough computers</td>
<td>3</td>
</tr>
</tbody>
</table>

4.5 Suggested measures to overcome the challenges

According to the results, 6 of the respondents said the institution should have a medical library. 3 of the respondents said that provision of free Wi-Fi can solve the problem of slow internet. 3 of the respondents said the institution should train health professionals how to use new technology while 3 of respondents said the institution should purchase more computers (table 5).

Table 5: Suggested measures to overcome the challenges

<table>
<thead>
<tr>
<th>Value</th>
<th>Number of respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provision of medical library</td>
<td>6</td>
</tr>
<tr>
<td>Free Wi-Fi</td>
<td>3</td>
</tr>
<tr>
<td>Train health professionals how to use technology</td>
<td>3</td>
</tr>
<tr>
<td>Purchase more computers</td>
<td>3</td>
</tr>
</tbody>
</table>
CHAPTER FIVE: DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter discusses the findings of the study. It will then draw the conclusion and the recommendations will be made thereafter.

5.1 Information needs of health professionals

The results indicated that majority of the respondents needed information on new health updates, diagnosis and disease treatment. This is similar to a study which was done by Younger (2010) which revealed that HPs offering line health care services such as nurses and clinical officers seek information mainly on new health updates, new treatment methods and disease diagnosis and treatment while those in support services seek information mainly related to new health updates, service planning and implementation. This is because information on new health updates helps them address new diseases and also come up with preventive measures in order to educate people who might not be aware. Diagnosis and disease treatment information makes it possible for health professionals to recommend the dosage to their patients.

5.2 Information sources which health professionals consult when faced with an information need

In rendering services to the patients, majority of the health service providers consults their colleagues more frequently than written literature and the internet. This is similar to a study Ajayi and Akiniyi (2004) which revealed that health professionals obtained a lot of information needed from their colleagues and friends. This is because the reliance on colleagues than other sources is due to the work environment and infrastructure at kalingalinga clinic. The clinic has few ICT facilities and very few recent textbooks, hence colleagues were opted as the immediate relevant source of health information to services providers. However according to this findings dependency on colleagues may be very risky especially if a colleague misdirects another, the third part (patient) will suffer the consequence.

In addition the study revealed that respondents use medical text books, medical journals, and clinical manual protocols. This Similar to a study by Bowden (2012), where he asserts that used medical text books, medical journals, and clinical manual protocols ranked second as the preferred source of information by health professionals. This is because of the increase in the use
The advantage of evidence-based resources is that the knowledge gained from large clinical trials is applied directly to patient care, which improves patient outcomes.

Furthermore, the study revealed that internet is the least used information resource. This is in line with a study by Revere et al. (2007) in which HPs are cited to rarely use electronic sources due to poor internet connectivity and few functional ICT infrastructure and equipment/tools. Common Internet sites mentioned were electronic databases such as MEDLINE, Cochrane library and Google. The reason why health professionals consulted internet is because were concerned that printed materials, such as textbooks, may contain outdated materials, which may translate into trust issues with this information source because medical practice should be compliant with the most current practice guideline and textbooks could contain obsolete information that may no longer be recommended.

5.3 Technology respondents use to obtain information for their work and how it influences their seeking behaviour

The study found that majority of the respondents use smartphones for gathering information for their information needs. In relation to this, a similar study was conducted by Koh and Wan (2014) which revealed that smart phones influence seeking behaviour due to medical applications as they were perceived by health professionals to have helped improve their clinical decision making and save time. This shows that there is very high level of awareness and use of smartphones/tablets for medical education purposes. This is because smartphones have made positive impact on the medical information seeking behaviour of Health professionals at Kalingalinga clinic. The major areas smartphones has made tremendous impact on their medical education were easy and fast internet access, high speed browsing, saves time and money going to cybercafé or college library, easy access to medical teaching and e-learning materials or e-textbooks. This is in line with the findings of Vafa and Chico (2013) the study revealed that majority of the respondents use their smartphones/tablets in downloading medical apps and downloading e-textbooks.

In addition the study revealed that respondents use computers. Computers enable them to find medical information on the internet and learning about current trends in their field of work. Furthermore, the study revealed that respondents also use tablets, tablets enabled respondents to
download very costly medical textbooks and journals that are ordinary expensive to acquire. Health professionals used their devices to find drug information, find clinical practice guidelines, read point-of-care information, do clinical calculations, or perform differential diagnoses (Boruff and Storie, 2014).

5.4 Challenges respondents face when seeking information

According to the study, majority of the respondents identified that lack of access to fast internet among health care providers as a great hindrance for them to access electronic resources. These findings are similar to a study conducted by Roseberg (2005) who observed that speed and reliability of internet connection is a major challenge faced by health professionals in seeking information. This is because they fail to access the recent health information with regards to their specialty from the internet hence they just rely on other sources such as books and colleagues. In addition respondents said gathering information from electronic sources is very difficult than from traditional sources this is due to information overload.

In addition, this study identified that not having enough computers among health professionals as a great hindrance to information seeking. This is because due to poor infrastructures and scarcity of ICT facilities health professionals fail to seek recent information. Furthermore, Lack of a local library was another significant barrier reported by respondents, due to lack of medical libraries health professionals use books that are not updated. Lastly lack of familiarity with new technology was identified as a barrier to information seeking. This is because not being familiar with technology tends to decrease use of IT-based sources such as electronic journals and other internet materials thus health professionals do not easily retrieve IT-based information sources and it affects their information seeking behaviour.

Suggested measures to overcome the challenges.

Furthermore, respondents suggested that the clinic should train health professionals how to use technology. This could be carried out through attending conferences and seminars.

The study revealed that respondents suggested provision of free Wi-Fi can solve the problem of slow internet and the use of mobile bundles. This is because Wi-Fi can improve the efficiency of communication with patients, as the respondent can use the Wi-Fi network captive portal to share health information with patients through emails. This helps to keep patient updated about
important things such as a reminder about their next check-ups. Furthermore, patients can easily search on the captive portal information about treatments and general information.

The respondents suggested provision of medical library to solve the problem of gathering information from electronic sources is very difficult than from print materials and no access to updated books. This is because libraries have print books and linked to the internet. Installing internet in medical libraries encourages effective use of information materials and access to current materials like electronic journals and electronic books. The medical libraries should be fully automated through the use of library software like KOHA. Although there is a lot of interest in the use of soft copies of books, effort should also be made to provide current books and journals that are found in to augment information obtained from the internet.

The study reveal that respondents suggested purchasing more computers to solve the challenge of not having enough computers. This is because computers relieves health professionals to devices within their disposal saves them the stress involved in accessing these essentials services. Similar to a study by Dubow & Chetley (2011), purchasing of ICT and ICT skills development improves information seeking behaviour among HPs. ICT helps HPs to access new health information such as use of new medical technologies, proper handling of the necessary medical procedures and treatment of patients. Provision of sufficient health information brings health workers to act harmoniously in a consistent and efficient manner on medical and health practice.

5.3 Conclusion

This study has identified some of the information needs of health professionals which include provision of information needed in clinical areas and information for care of patience. The information sources utilized by health professionals were also identified and it is clear that the users are not satisfied with the services made available to them. It is therefore necessary to ensure that current library materials in book and non-book format that are relevant to the needs of health professionals are provided on a regular basis to enable them perform their duties effectively. The medical libraries should carry out users study to enable them meet the information needs of health professionals.

5.4 Recommendations for Policy

The study recommends the following based on study findings:
1. Need for training health care providers on computer technologies and impart them with skills on how to search health related information from various sources.
2. Health facility needs more ICT equipment to improve the performance of various departments.
3. Need for regular replacement of old textbooks, health information databases and other equipment with current one in order to suit the needs of the health care providers.
4. Provide reliable internet access coupled with training of HPs on computer applications in all health facilities to enhance access to IT-based resources.
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APPENDICES
Appendix 1: INTERVIEW GUIDE FOR HEALTH PROFESSIONALS AT KALINGALINGA CLINIC.

SECTION A: DEMOGRAPHICS
1. What is your profession?
2. How long have you served in this profession?

SECTION B: INFORMATION NEEDS HEALTH PROFESSIONAL
3. What are the specific areas of your information need?
4. When faced with an information need, which information sources do you consult?

SECTION C: TECHNOLOGICAL FACTORS WHICH INFLUENCE SEEKING BEHAVIOUR OF HEALTH PROFESSIONALS
5. Which technology do you normally use to obtain information for your work?
6. Do technological factors influence your information seeking behaviour?
7. If yes or no give reasons for your answer in 6.

SECTION D: CHALLENGES FACED WHEN SEEKING INFORMATION
8. What challenges do you face when seeking information?
9. What do you think should be done to overcome the challenges?
## Work plan and Budget

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DESCRIPTION</th>
<th>PERIOD</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Formulating and approval of the topic.</td>
<td>This activity will involve coming up with a research topic and consulting the lecturer for any amendments until approval.</td>
<td>One week</td>
<td>K0</td>
</tr>
<tr>
<td><strong>2.</strong> Literature review</td>
<td>This activity will involve looking at different secondary data sources pertaining to the topic. This will entail a review of books, journals or any work that has been done in relation to the topic thereafter collecting it for the proposal.</td>
<td>Two weeks</td>
<td>K0</td>
</tr>
<tr>
<td><strong>3.</strong> Proposal writing</td>
<td>This is where all the necessary information that is significant to the topic will be aggregated and written in order which will involve typing and writing.</td>
<td>Nine weeks</td>
<td>K200</td>
</tr>
<tr>
<td><strong>4.</strong> Preparing research instruments</td>
<td>This activity will constitute the data collecting tools being typed, edited and printed.</td>
<td>One week</td>
<td>K400</td>
</tr>
<tr>
<td><strong>5.</strong> Pre-testing of data collection tools</td>
<td>This activity will involve testing the data collection tools to ensure that the data collected is sufficient. the data collection tools will be administered on a few people and if any inconsistencies come up, amendments will be made</td>
<td>Four days</td>
<td>K200</td>
</tr>
<tr>
<td>Activity</td>
<td>Description</td>
<td>Duration</td>
<td>Cost</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td>6. Collecting of primary data</td>
<td>This activity will involve distribution of questionnaires to target group 1 and interviewing target group 2.</td>
<td>One weeks</td>
<td>K300</td>
</tr>
<tr>
<td>7. Data analysis and draft report writing</td>
<td>This activity will involve analyzing data from the questionnaire and interview guide which will be followed by presentation of the data in a draft report</td>
<td>Three weeks</td>
<td>K100</td>
</tr>
<tr>
<td>8. Preparation of final report</td>
<td>This activity will entail editing, printing and binding the final report thereafter submitting to the lecturer for marking.</td>
<td>Four weeks</td>
<td>K380</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>K1,580</td>
</tr>
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</table>
