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Challenges in Quality Care Delivery in Tertiary Health Facilities in North-Central Nigeria

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Walden University
2020

Abstract

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Nigeria

by

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MPH, University of Glasgow, 2010

MBBS, University of Jos, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The increasing mortality rates in tertiary healthcare hospitals in developing countries, such as Nigeria, have given growing concerns about the quality of healthcare services delivered in these hospitals. The purpose of this study was to examine the challenges of quality healthcare delivery in tertiary healthcare hospitals in North Central Nigeria, using a quantitative method. A total of 255 respondents, comprising medical, paramedical staff, and patients, from 3 tertiary hospitals were included in the study. The Healthcare Quality Assessment Questionnaire was used to collect data. Chi-square and analysis of variance were used to test the hypotheses. Results of the study showed that the major challenges confronting the delivery of quality healthcare services in the studied health facilities were the inadequate but fairly good condition of medical equipment, inadequate staff training, fairly good salaries, delayed diagnostics and treatment procedures and long wait times of patients. Also, the chi-square statistics indicated a significant association between medical facilities and the quality of healthcare services of tertiary hospitals (p = 0.034). The analysis of variance results indicated no significant difference in the challenges confronting tertiary healthcare hospitals with the delivery of quality healthcare services in the study area. The study shall affect social change by gathering information needed to formulate public policies on quality improvements in tertiary health facilities. It is therefore recommended that the government of Nigeria and hospital boards take steps to improve on healthcare service delivery in the tertiary hospitals.

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Dedication

This dissertation is dedicated to the Almighty God whose grace saw me through the research work in the midst of daunting challenges. His grace over my life prevailed over daunting academic, social, financial and emotional challenges associated with the program that almost overwhelmed me. You alone deserve the glory, adoration and honor.

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Chapter 1: Introduction to the Study

Introduction

This study investigated the challenges of quality healthcare delivery in North Central Nigeria, to provide the information needed to improve the quality of care delivery through public health policies. The quality of healthcare systems is central to the delivery of effective, efficient, and affordable healthcare. Unfortunately, this has not been the case in most low- and middle-income countries (LMIC), including Nigeria, owing to its system's organizational factors, as well as to socio-cultural, socio-economic, and socio-political factors (Olapojoye, 2017).

The consequences of poor quality healthcare delivery, as observed globally, include, but not limited to, increased rates of poorly treated chronic diseases such as high blood pressure, cardiovascular disease, kidney diseases; endocrinology disorders such as diabetes mellitus; musculoskeletal disorders and others (Lee, Gupta, Price, & Baranowski, 2013, Runnacles, Moult, & Lachman, 2013). Poor quality healthcare delivery is manifested in the low level of care obtainable in the health facilities globally. This is evidenced by the poor treatment of some diseases in most hospitals manifesting as poor treatment outcomes in hospitals, especially tertiary health facilities. These are considered very important in the healthcare system due to the high level of doctors' training and the other health workers who are capable of delivering quality care services (Tom & Gillespie, 2013).

This dissertation is structured in five chapters. Chapter 1 is the introductory chapter with information on the background to the study, the purpose of the study, research questions, objectives and hypotheses, significance of the study, scope, theoretical framework, and limitations. Chapter 2 contains details of literature review. Chapter 3 includes the research method, for example, information on study design, types and sources of data, types of data needed in this research, instruments of data collection, sampling procedures, methods of data collection, and data analytical techniques. Chapter 4 is made up of the main findings of the study and the discussion of the findings in relation to the existing literature. Chapter 5 contains the summary of research findings, the implications for social change, the conclusions, and the recommendations.

Background of the Study

Quality healthcare enhances the physical, mental, psychological and, economic well-being of individuals (Runnacles et al., 2013). Adequate quality of healthcare delivery is essential to curtail the number of people who suffer annually from poorly treated diseases that result in increased morbidity and mortality rates. Quality care delivery in healthcare facilities largely depends on organizational treatment factors and procedures, such as level of care providers' training, nature of the physician-patient relationship, treatment procedures, diagnostic procedures, and facility needs, such as laboratory equipment, number of beds, and types of diagnostic machines (Olapojoye, 2017).

The problems related to the delivery of poor-quality care in most healthcare hospitals in Nigeria include increased rates of chronic diseases, medical errors, the continual increase in monies spent on healthcare services without commensurate health outcomes and, high morbidity and mortality rates (Olapojoye, 2017). This problem of poor quality care has been reported by many researchers in different parts of the world; for instance, Olapojoye (2017) in Nigeria; Runnacles et al. (2013) in London; Lee et al. (2013) in the United Kingdom; Tom and Gillespie (2013) in the United States. Many researchers, including Oladejo, Umeh, and Ogbuefi (2015), among others, have reported increased mortality rates in tertiary hospitals in the southeastern and other parts of Nigeria, including North Central, consequent to poor service delivery. Olapojoye (2017) noted that most challenges that hamper the delivery of quality care services in health facilities, most especially tertiary healthcare hospitals, stem from inadequate facilities, organizational problems of, lack of quality laboratory equipment, the poor doctor-patient relationship, and others. This scenario has led to high morbidity and mortality rates in Nigeria, including the North Central region.

Because of the effects of health care inadequacies observed in tertiary healthcare hospitals, many studies have been conducted on different aspects of tertiary healthcare hospitals in different parts of the world. For instance, Lee et al. (2013) focused on the effectiveness of treatment procedures of chronic diseases at tertiary healthcare hospitals in the United Kingdom. Tom and

Gillespie (2013) investigated patients' neglect in health facilities including tertiary healthcare hospitals in the U.S. In Nigeria, some studies have been carried out on tertiary healthcare hospitals. For instance, Oladejo, Umeh and Egolum (2015), and Oyebade (2015) reported on challenges of maintaining tertiary healthcare facilities in southeast Nigeria; Umeano-Enemuoh, Onwujekwe, Uzochukwu and Ogochukwu (2014) and Oladejo, Umeh and Ogbuefi (2015) focused on patients' satisfaction and quality care delivery in tertiary healthcare hospitals in southeastern Nigeria. Also, Umeano-Enemuoh et al. (2014) reported on the referral system of tertiary healthcare hospitals in southwestern Nigeria.

With most of the studies concentrating on the southeastern and southwestern parts of the country, the literature reported challenges with maintaining tertiary health facilities, patients' satisfaction with tertiary health services, and the effectiveness of tertiary healthcare referral systems. In spite of this, there has been little or no concerted efforts to research the main challenges confronting the delivery of quality healthcare in tertiary hospitals of North Central Nigeria. As a result, there is a lack of data, data that are needed to improve the quality of care delivery in tertiary healthcare hospitals, as well as improving the quality of patients' health in the study area.

Statement of the Research Problem

The increasing incidence of morbidity and mortality rates in hospitals has given rise to the growing concern on the quality of health care services offered in

different parts of the world. Many tertiary healthcare hospitals in North Central Nigeria have, over the years, experienced increased death rates and incidence of chronic diseases (Oladejo, Umeh, & Egolum, 2015). This observable situation in the tertiary hospitals of North Central Nigeria has become inimical to the quality of care services delivered in this part of the country.

However, the federal government of Nigeria spends at least 50% of the federal ministry of health's budget on tertiary health facilities alone, without concomitant health outcomes (Oyebade, 2015). Despite this unfortunate situation, information on constraints relating to low-quality care delivery in tertiary hospitals, which ought to be useful for improving the quality of care in tertiary healthcare hospitals of North Central Nigeria, is not available. Moreover, little or no research has been deployed to investigate the challenges confronting quality care delivery in this geopolitical zone of the country. Hence, the literature is limited to the problems of quality care delivery in tertiary healthcare hospitals in North Central Nigeria. This study, therefore, sought to examine the challenges of delivering quality healthcare in tertiary health facilities in the North Central region of the country to help formulate public policies that could enhance the well-being of patients and reduce the prevailing rates of morbidity and mortality.

Purpose of the Study

The purpose of this study was to examine the challenges of quality healthcare delivery by tertiary healthcare hospitals in the North Central region of Nigeria using a quantitative research method.

Research Questions

In the course of this research, the following questions were considered in a bid to answer them:

1. What are the effects of medical facilities on quality of care delivery in tertiary healthcare hospitals in the North Central region of Nigeria?

2. What are the impacts of organizational factors on quality of care delivery in tertiary healthcare hospitals?

3. Are there disparities in the medical facility and organizational challenges faced by tertiary healthcare hospitals in the North Central region of Nigeria?

4. What is the patient's perception of the quality of healthcare services in tertiary healthcare hospitals in the study area?

Research Objectives

The objectives of the study were to

1. Assess the effects of medical facilities on the quality of healthcare delivery at tertiary healthcare hospitals in the North Central region of Nigeria.

2. Evaluate the impacts of organizational factors on the quality of healthcare delivery in the study area.

3. Ascertain if there is a difference in the medical facility and organizational challenges of tertiary healthcare hospitals in the study area

4. Assess the patient's perception of the quality of healthcare services in tertiary healthcare hospitals in North Central Nigeria.

Research Hypothesis

The following null and alternative hypotheses were tested in the course of this study.

Hypothesis 1

$H1_0$:   Medical facilities in the tertiary hospitals do not have significant association with the quality of healthcare services in North Central Nigeria.

$H1_1$:   Medical facilities in the tertiary hospitals have a significant association with the quality of healthcare services in North Central Nigeria.

Hypothesis 2

$H2_0$:   Organizational factors such as diagnostic and treatment constraints in tertiary hospitals of North Central Nigeria do not have a significant association with the quality of care service delivery.

$H2_1$:   Organizational factors such as diagnostic and treatment constraints in tertiary hospitals of North Central Nigeria have a significant association with the quality of care service delivery

Hypothesis 3

$H3_0$:   There is no significant association in organizational and medical

facility challenges of quality care delivery between tertiary

healthcare hospitals in the study area.

$H3_1$:   There is a significant association in organizational and medical

facility challenges of quality care delivery between tertiary health

care hospitals in the study area.

Hypothesis 4

$H4_0$:   There is no significant association in the patient's perception of the

quality of healthcare services between tertiary healthcare hospitals

in North Central Nigeria.

$H4_1$:   There is a significant association in the patient's perception of the

quality of healthcare services between tertiary healthcare hospitals

of North Central Nigeria.

Theoretical Framework

General systems theory (GST) was considered in this research. It was

conceived by Ludwig von Bertalanffy in 1928, and since then, it has progressed

under two related assumptions. The first assumption was that a system could be

broken down into its components, so that each element could be analyzed as an

independent entity. Second, the components could be added in a linear fashion to

describe the totality of the system. GST considers elements with diverse

components that are interrelated and interdependent. Thus, it is applied to

systems that are made up of subsystems and hierarchies—isolated, complex, open

or closed systems—or components that are dependent on one another (Walonick, 2013).

Some of the criticisms of GST are that it is broad in scope, making it sometimes challenging to provide a holistic view of an area of human activity or phenomena, which often results in a more generalized framework that provides a less valuable explanation of the phenomena. Also, it gives too much emphasis to the relationship between components of various subsystems and other elements of the larger system, possibly making the theory inadequate for certain explanations (Covington, 2014).

Nevertheless, some of the strengths of GST include, among others, the ability to use it to study healthcare settings or systems where there are many unpredictable variables at work. It is also useful in providing a framework for studying complex variables influencing one another. Moreover, some phenomena operate in a manner that is beyond a cause-effect explanation. GST is useful in describing such phenomena by examining the relationship between the components of such a system and interpreting it in a manner that reflects the changes that are likely to occur in the system (Covington, 2014).

GST visualizes the healthcare system as a complex system that can be described using hierarchical levels of organization. Also, the theory is used to express the healthcare system as an open and dynamic system, made up of subsystems that exist in a state of dynamic equilibrium and that affect each other (Chuang & Inder, 2016). Systems theory, as applied to healthcare studies,

therefore, enables a realistic measure of healthcare quality within the system, which is a function of its inputs and outputs (Chuang & Inder, 2016). Healthcare quality is expressed in terms of outputs from the healthcare system, which are influenced by input variables, such as doctors' training, diagnostic procedures, the quality and amount of medical facilities, and others, which reflect the extent of patients' safety and wellness.

GST has been used widely in healthcare studies because of its relevance in evaluating the improvement of medical service delivery in healthcare facilities. With reference to its application in healthcare research, Howley and Chuang (2016) applied the theory in assessing measures of improving healthcare delivery in Australia by examining the relationship between accreditation, quality measurement, and reporting systems in health care organizations as subsystems. To reflect their impacts on patient safety and quality of care, McCovery and Matusitz (2014) used GST to examine the role of collaboration between health care agencies/organizations in the United States. This included cooperation and teamwork among health professionals (i.e., nurses, technicians, physicians, and laboratory staff) towards effective and efficient healthcare delivery. Chuang and Inder (2016) used GST to examine the relationship between accreditation system, quality measurement, and reporting systems as a way to improve health care outcomes in healthcare facilities.

When using systems theory in the context of a complex system, it is feasible to examine those variables that contribute to healthcare quality inputs,

such as frequency of patient checkup and treatment, doctors training, doctor-patient relationship, available facilities. and others, which affect the quality of medical service delivery in tertiary health facilities. Therefore, GST was considered suitable for this study, which sought to examine the challenges of healthcare quality in tertiary facilities in the North Central region of Nigeria. This theoretical framework was useful because the Nigerian healthcare system is considered a complex and dynamic system that is subject to change. The healthcare system has input measures in the form of subsystems, such as organizational systems, structural systems or quality constraints, which readily exist in dynamic equilibrium with the present quality of care. The theory was, therefore, used to explain those input factors that negatively impact the quality of tertiary healthcare service delivery in North Central Nigeria.

Nature of the Study

In this study, a quantitative approach was used for data collection and analysis. According to Creswell (2009), quantitative research quantifies the problem of inquiry by generating numerical data or data that can be transformed into useful statistics. A cross-sectional design was employed to collect responses from different groups of people, such as staff and patients in the tertiary hospitals, who shared characteristics of interest, such as age, educational background, and sex (Creswell, 2009). The cross-sectional survey was meant to collect information needed to describe a population or a subpopulation concerning an outcome: the quality of healthcare delivery.

Thus, this research, used a questionnaire to collect data from patients and caregivers in three tertiary healthcare hospitals, after which the data were analyzed quantitatively and then interpreted. This was meant to gather meaningful facts that reflect the perspectives of the respondents. The research sought to measure variables, such as organizational factors and facility needs, in three tertiary healthcare hospitals. Measurements of adequacy can better be expressed in quantitative form. It is not good enough to describe the number of medical facilities (such as diagnostic machines, scanning machines, radiographic machines, rehabilitation machines etc.) in a hospital without mentioning the exact amount or quantity of such facilities.

In the same light, stating the attitudes of people about the quality of medical services in a way that gives a reader good insight into the problem enables realistic measures of the variables (Robson, 2015). Organizational factors are some of the measurable variables in this research. Using ordinal and ratio scales to quantify these variables (in terms of physician-patient relationship, wait time, care consumer perception of healthcare quality, quality of diagnostic procedures among others) provides a better objective understanding of the problem under investigation for testing postulated hypotheses and establish relationships.

Assumptions

It is assumed in this study that poor quality healthcare delivery is a problem that results from a complex combination of factors. Tertiary healthcare

hospitals in North Central Nigeria are faced with increased mortality and morbidity rates, and the constraints to this observed problem are multi-dimensional. Medical facilities and organizational factors—such as poor physician-patient relationships, long patients' wait time, among others—are some of the challenges faced by tertiary healthcare hospitals in delivering quality healthcare.

Thus, in this study I sought to elucidate the challenges to quality healthcare delivery in tertiary healthcare hospitals to provide the information needed to improve the depth of the literature and enhance human health. The healthcare quality assessment questionnaire that was used in collecting data in this study was validated using small initial samples in a pilot survey and was assumed to be sufficient for obtaining the needed quantitative data.

Scope and Delimitations

This study focused on challenges such as medical facility and organizational variables that affect the quality of healthcare service delivery in North Central Nigeria. The healthcare hospitals considered for this study were the first and leading tertiary healthcare hospitals in the region, namely, the University Teaching Hospital Jos, Plateau State; National Hospital, Abuja; and Benue State University Teaching Hospital, Makurdi. These three tertiary healthcare hospitals served as research points for data collection in order to enhance social change in healthcare hospitals of North Central Nigeria through

reduced mortality rates. Because of the quantitative nature of the data that was collected, generalization was made on the findings of the study in the study area.

Limitations

This study on the challenges to quality healthcare delivery in North Central Nigeria sought to create social change by improving the quality of healthcare services in Nigeria and thus improving the population's health. Notwithstanding, data collection from healthcare providers was not that easy owing to restrictions made on health facilities in Nigeria and the busy schedule of healthcare workers. Therefore, the data collected may not be an exhaustive spectrum of the challenges confronting the identified tertiary hospitals included in this study.

Also, physicians, nurses, pharmacists, laboratory technicians, among other health workers, were contacted for completing the questionnaire that was used for data collection. The healthcare providers attended the questionnaire in time and returned the same for analysis. Notwithstanding, not all the healthcare workers in the tertiary hospitals visited could be included in the study due to financial and logistic constraints. This would have been the best situation that will be able to capture all the challenges faced by these institutions. However, the inclusion of different healthcare workers and the findings of this study had been able to identify those germane problems with the medical facilities constraining the delivery of adequate healthcare in the visited tertiary hospitals in North Central Nigeria.

Significance of the Study

The significance of the study was expressed in terms of its relevance to advancing theory, medical practice, and social change.

Significance to Theory

The study contributed to the depth of literature, by bridging literature gaps on the subject matter of quality healthcare delivery in North Central Nigeria. It may augment the usefulness of GST in examining some phenomena which operate in a manner that is beyond a cause-effect explanation. It thus serves as a useful example of a situation for studying complex variables influencing one another. This study may be relevant to other researchers in future studies, related to the problem of inquiry.

Significance to Practice

The study on the challenges to healthcare quality in tertiary hospitals in the North Central region of Nigeria provided information on the gaps in quality of care delivery in Nigeria in order to reduce morbidity and mortality rates.

Significance to Social Change

The study sought to effect social change by gathering the information needed to formulate public policies on quality improvements in tertiary health facilities.

Summary and Transition

Chapter 1 covered the background of the study, research problem, research questions and objectives, hypotheses, theoretical framework, nature of

the study, assumption, scope and delimitation, limitations and the significance of the study. It explained the relevance of the research in bridging the literature gap on the specific challenges impeding the delivery of quality healthcare services in North Central Nigeria. The purpose of this study was to provide the information needed to effect social change on the larger population's health through the development of public health policies that would help curtail the high rate of morbidity and mortality rates in the country. The theoretical framework and a review of related literature are included in Chapter 2. Chapter 3 details the methodology employed in answering the research questions while Chapter 4 are the results of the study. In Chapter 5, a detailed discussion of the results is given. The chapter concludes with a conclusion section and recommendations from the study.

Chapter 2: Literature Review

Introduction

The study on the challenges to quality care delivery in North Central Nigeria concerned constraints to optimum care delivery. The research was rooted in the GST because of the complex nature of the interrelationships in the healthcare system and due to multiple factors contributing to a given effect. This complexity was the major factor that affect healthcare operations and service delivery in the region.

Literature Search Strategy

The review of the literature focused on the kinds of services that are obtainable in tertiary health facilities, facility and the influence of the facility and organization on the quality of healthcare delivery. Articles on the challenges of healthcare delivery in tertiary hospitals were identified via Google Scholar, PubMed, Science Direct, and MEDLINE by searching titles and abstracts with the following keywords and phrases: *challenges of healthcare, tertiary hospitals, healthcare quality constraints, problems of tertiary health facilities, patients' perception of tertiary healthcare, the impact of facilities in tertiary hospitals,* and *organizational influence in tertiary hospitals*. All articles were published between 2013 and 2017.

Theoretical Framework

The GST was considered in this research. It was originally proposed by Ludwig von Bertalanffy in 1928, and since then, the theory has progressed under two related assumptions. The first assumption was that a system could be broken down into its components so that each element could be analyzed as an independent entity. Secondly, the components could be added linearly to describe the totality of the system (Walonick, 2013). The GST considers elements with diverse components that are interrelated and interdependent. The general systems theory, therefore, is applied to systems that are made up of subsystems and hierarchies, isolated, complex, open or closed systems, or components that are dependent on one another (Walonick, 2013).

Some of the criticisms of GST are that it is broad in scope, making it sometimes difficult to provide a holistic view of an area of human activity or phenomena, which often results in a more generalized framework that provides a less valuable explanation of the phenomena. Also, it gives too much emphasis on the relationship between components of various subsystems and other elements of the larger system, possibly making the theory inadequate for specific explanations (Covington, 2014).

Notwithstanding, some of the strengths of GST include, among others, the ability to use this theory in studying healthcare settings or systems where there are many unpredictable variables at work. It is also useful in providing a framework for studying complex variables influencing one another. More so,

some phenomena operate in a manner that is beyond a cause and effect explanation. The GST is useful in describing such events by examining the relationship between the components of such a system and interpreting it in a manner that reflects the changes that are likely to occur in the system (Covington, 2014).

The GST visualizes the healthcare system as a complex system that can be described using hierarchical levels in terms of its organization. Also, the systems theory is used to express the healthcare system as an open and dynamic system made up of subsystems that exist in a state of dynamic equilibrium and affecting each other (Chuang & Inder, 2016). Systems theory, as applied in healthcare studies, therefore, enables a realistic measure of healthcare quality within the system, which is a function of inputs and outputs that exists in the healthcare system (Chuang & Inder, 2016). Healthcare quality is expressed in terms of outputs from the healthcare system, which are influenced by inputs variables such as doctors' training, diagnostic procedures, quality and amount of medical facilities, among others, reflecting the extent of patients' safety and wellness.

The GST has been widely used in healthcare studies because of its relevance in evaluating improvement measures of healthcare facilities in terms of medical service delivery. With particular reference to its application in healthcare research, Howley and Chuang (2016) applied the theory in assessing measures of improving healthcare delivery in Australia by examining the relationship between accreditation, quality measurement, and reporting systems in health care

organizations as subsystems; to reflect their impacts on patient safety and quality of care. McCovery and Matusitz (2014) used the system theory to examine the role of collaboration between health care agencies/organizations in the United States. This included cooperation and teamwork among health professionals (i.e., nurses, technicians, physicians, and laboratory staff) towards effective and efficient healthcare delivery. Chuang and Inder (2016) applied the GST to examine the relationship between accreditation system, quality measurement and reporting systems as a measure to enhance improvement of health care outcomes in healthcare facilities.

Hence, using systems theory in the context of a complex system, it is feasible to examine those variables that contribute to healthcare quality inputs, such as frequency of patient checkup and treatment, doctors training, doctor-patient relationship, available facilities, among others, which affects the quality of medical service delivery in tertiary health facilities. Therefore, systems theory was considered suitable for my dissertation topic, which sought to examine the challenges of healthcare quality in tertiary facilities in the North Central region of Nigeria. This theoretical framework was useful because the Nigerian healthcare system is a complex and dynamic system subject to change; with input measures in the form of subsystems, such as organizational systems, structural systems or quality constraints, which readily exist in dynamic equilibrium with the present quality of care. The theory was therefore used to explain those input factors that

negatively impact the quality of tertiary healthcare service delivery in North Central Nigeria.

Literature Review

The literature review section contains information on studies related to the present study on challenges of quality care delivery in North Central Nigeria. Literature was reviewed on the effects of medical facilities on the quality of healthcare services in tertiary hospitals. The impacts of organizational factors on the quality of care services in tertiary health facilities and patients' perceptions of the quality of care delivery.

The Effects of Medical Facilities on the Quality of Healthcare Services Delivery in Tertiary Healthcare Hospitals

Tertiary healthcare is the type of healthcare that offers advanced specialized medical investigation and treatment, as well as consultancy medical services to patients, often based on a referral from primary and secondary healthcare hospitals (Flegel, 2015). The types of services offered in tertiary healthcare hospitals include, among others: outpatient care, inpatient care, medical rescue service, and emergency service, work-related medical services, dispensary care, rehabilitative care and preventive care. Quality healthcare is the type of medical care that enhances the well-being of an individual and minimizes medical error (Flegel, 2015).

Medical facilities are very essential for quality service delivery in tertiary healthcare hospitals. Thus, the lack of healthcare facilities is likely to affect the

treatment of many diseases. Loughrey, Fitzpatrick, Connolly, and Donnelly (2002) examined the current peri-operative management techniques and clinical care settings of high-risk surgical patients in the hospital without a High Dependency Unit (HDU). Data for the study were collected by conducting an audit of high-risk surgical patients for eight weeks using a pre-operative questionnaire. Also, postoperative monitoring, pain management, and organ support were monitored (Loughrey et al., 2002). This research indicated that 25% (seven) of patients admitted to the Intensive Care Unit (ICU) were rated HDU suitable, implying inappropriate use of resources and facilities. Also, 75% (27) of the patients admitted were categorized as fulfilling HDU admission criteria. Loughrey et al. (2002) noted that the lack of facilities in the tertiary hospitals affects the type of peri-operative medical care provided to patients.

King et al. (2013) examined the importance of communication gadgets in tertiary skilled nursing facilities in communicating with patients from one unit of the hospital to another. Data for the study was collected from personal interviews and focus group discussions. Results of study showed that nurses rely mostly on written hospital discharge communication. Also, poor communication in the health facility mainly affected the provision of accurate information regarding the health status of patients. Inadequate communication also increased patients' rehospitalization, care delays, staff stress, frustration among patients and family members, and contributed to the general negative skill nursing facility image (King et al., 2013).

Eme, Uche, and Uche (2014) assessed the availability of healthcare facilities and their impact on the quality of the healthcare systems in Nigeria in the southern part of the country. A questionnaire was used to collect data from healthcare professionals in secondary and tertiary health facilities for analysis. The findings of the study indicate among other things that the provision of healthcare facilities seems to be low in hospitals. Results of the survey faulted the deceitful electioneering and re-electioneering claims by Nigerian politicians that healthcare facilities would be made available at every nook and cranny of Nigeria upon election into public offices.

Boussabaine, Sliteen, and Catarina (2012) examined the impact of the intensity of hospital bed occupancy on healthcare facilities' operational costs in France. Data for the study were collected from 19 short stay care acute and long-term care hospital facilities in Paris, France, carried out during 2008. Statistical analysis was conducted to investigate the impact of bed occupancy on the operational cost of health facilities and the quality of service delivered. The results of the study showed a strong relationship between bed usage and operational costs of acute hospital facilities in France.

An analysis of annual operation and maintenance cost clearly indicated that type of medical activities had a major impact on operation and maintenance cost when the influence of all other potential factors, notably, morphology, quality of construction, and age, were excluded. Boussabaine et al. (2012) concluded that this had implications on the quality of care

delivered in those tertiary hospitals. That healthcare facility is essential in ensuring quality care service delivery in hospitals; however, with an attendant cost effect of maintenance.

Nikhil, Vinod, and Achala (2016) conducted a study to find out the utilization rates of equipment in the radiology department of a tertiary hospital to identify the status of the department in terms of effectiveness and efficiency. The equipment chosen in this study were Magnetic Resonance Imaging (MRI) scanning machine, Computer Tomography (CT), and Mammography. The study also focused on the quality assurance aspect and compliance rate of the department to the National Accreditation Board for Hospitals and Healthcare Providers. The study included various tools to assess the utilization rate of selected equipment, one of which being the Time and Motion study which was to bring out a clear picture on time taken for examinations performed.

Findings of the study indicated, among other things, that the compliance of the radiology department to the regulatory requirements was good, with only little deviations and errors. Most of the radiology equipment were in good condition and working effectively. Breakdown periods of the equipment were very few, especially because the hospital had an excellent preventive maintenance plan in place. Nikhil et al. (2016), in view of the above findings, recommended accurate appointment systems to the department, wherein inpatients examinations can be conducted during post outpatient department hours to

avoid overcrowding which will also reduce the waiting time for patients; for improved healthcare quality.

De Oliveira (2014) noted that internet use by patients as a source of information on health and disease is expanding rapidly with obvious effects on the doctor-patient relationship. Hence, a study was conducted to ascertain the impact of the internet on the patient-doctor relationship in a hospital in the city of São Paulo, Brazil. To collect data, a self-administered questionnaire was used, to elicit physicians´ perception of the use of the internet by patients and if the usage interfered with the doctor-patient relationship. The results of the study showed that 85.3% of Physicians reported patients' usage of the internet facilities located in the hospital. Also, 92% of patients used the information derived from the internet in the next visit to seek medical care.

De Oliveira (2014) reported that 56.9% of physicians noted that the internet facilities helped in enhancing doctor-patient relationships. Also, 27.6% of respondents reported the interference of doctor-patient relationships due to internet usage. 15.5% of Physicians reported that the internet harms the physician-patient relationship. De Oliveira (2014) concluded that the internet as a form of information technology has significant impacts on medical knowledge development and retrieval of medical records that are needed to enhance the quality of healthcare delivery in health facilities. This is also meant to improve physician-patient relationship in the hospitals for improved treatment procedures.

Chaudhary and Kaul (2015) opined that quality patient diagnosis and clinical management are largely dependent upon the availability of reliable medical diagnostic equipment. However, in the Indian scenario, the lack of preventive maintenance, non-availability of technology and spare parts, and non-availability of required funds for maintenance are mainly responsible for the failure of equipment maintenance, and hence, their proper utilization. Therefore, a study was carried out to ascertain the deficiency in the utilization coefficient (UC) of medical diagnostic equipment and the various factors causing the under-utilization of medical equipment in tertiary hospitals. In this study, to collect information needed, 30 pieces of medical diagnostic equipment were assessed for their Utilization Coefficients (UC), and simultaneously, a perception-based analysis was conducted, where the faculty and staff members concerned with the administrative matters and use of that particular medical diagnostic equipment were concerned.

The following factors were taken into account: low accessibility, obsolescence, break-down, affordability, availability of trained human resources, non-availability of consumables and spares, maintenance delays, limited working hours, and restricted availability. The results of the study indicated that 23% of the medical diagnostic equipment was not adequately used due to one reason or the other. Chaudhary and Kaul (2015) concluded that the most crucial factors affecting the utilization of medical diagnostic equipment as per the perception of the respondents were obsolescence, non-availability of spares, and maintenance

delays. The inadequacy of diagnostic machines to some extent negatively affected the quality of care delivered in the hospital.

The Impacts of Organizational Factors on Quality of Healthcare Services

The quality of healthcare services rendered in healthcare hospitals is largely dependent on some organizational factors that influence the workings of the healthcare system. Venkatesh (2015) noted that quality of care was measured and expressed in quantitative terms using the ranking responses of patient's responses based on experiences they had with healthcare facilities. Some of the organizational factors as elaborated by Ross and Venkatesh (2015) are:

1. The attitude of staff. This is a measure of the relationship between the healthcare facility staff and patients in the hospital. It shows the extent of the patients' experience to the quality of healthcare received from doctors, nurses and paramedical staff (Ross & Venkatesh, 2015). The relationship between doctors, nurses and paramedical staff plays a significant role in enhancing the quality of healthcare delivered to patients. Where doctor and nurse interaction with patients is not intensive to meeting patients' needs, patients' satisfaction is likely not to be met (Ross & Venkatesh, 2015).

2. Admission procedure. This is one of the factors that affect the quality of care. Ross and Venkatesh (2015) noted that admission procedures are some of the issues that affect the quality of care delivered in tertiary

hospitals. Admission procedures could include registration, preliminary investigations of ailment, availability of bed space, timely allocation of bed space among others (Ross & Venkatesh, 2015). When these procedures are delayed and not properly done, the process is likely to affect the quality of healthcare delivery.

3. Physical environment. The physical environment of a hospital determines the aesthetic value of the healthcare facility. The availability of facilities in the hospitals gives patients an impression of what is obtainable in the hospital. Before a service experience even begins, the patient usually has already decided whether they will be returning to the hospital again or not. It, therefore, creates a connection between the quality of service obtainable in the hospital and patient satisfaction. As such, the quality in the lobby, out-patient clinics, inpatient rooms, operating rooms, examination/procedure rooms, support areas, reception counters, and administrative areas contributes to patient satisfaction for medical care (Ross & Venkatesh, 2015). Ross and Venkatesh (2015) opined that keeping the hospital environment has a more significant impact on hospital quality and includes "environmental cleanliness, hygiene, hand washing techniques among others." Physical environment cleanliness, therefore, helps in influencing care consumers' satisfaction in attaining quality services.

4. Diagnostic services delay. Delay in diagnostic services leads to dissatisfaction amongst patients. Diagnostic facilities include laboratory and radiology services which are routinely used in the hospitals daily. Delay in diagnostic procedures could lead to an increased incidence of ailment and even death (Ross & Venkatesh, 2015). Carney (2011) identified aspects of diagnostic procedures and how they influenced quality healthcare delivery. Interviews were conducted on 50 professional clinician and non-clinician heads of department in acute care hospitals in Ireland. Organizational culture was found to be more complicated than was previously thought. Several cultural influences such as excellence in care delivery, ethical values, involvement, professionalism, value-for-money, cost of care, commitment to quality and strategic thinking were found to be vital cultural determinants in quality care delivery. Health care managers perceived that to deliver quality healthcare, they need to act in a professional, committed manner and to place excellence at the forefront of care delivery; while at the same time being capable of managing the tensions that exist between cost-effectiveness and quality of care.

Thulth and Sumaya (2015) assessed some selected organizational factors that affect nurses' performance in some government tertiary hospitals to improve its current and future performance of professional nurses. A self-administered questionnaire was developed with a response rate of 97%. The study indicated that the overall level of selected organizational factors affecting the performance

of professional nurses was high (74.6 %); the workload rated the highest (79.2 %)

among the study dimensions as perceived by nurses, manager support (72.0%),

and resources availability (69.8%). According to Thulth and Sumaya (2015), the

implication of these findings is that in healthcare facilities, where caregivers such

as nurses are readily available for discharge of duties or service to patients, such

an organizational attitude has a positive impact on the quality of healthcare

delivery.

Wright (1997) researched the impact of organizational factors on mental

health professionals' involvement with clients' families. Data was collected from a

survey conducted with psychiatric staff at the largest public and private hospitals

in Indianapolis between 1991 and 1993. Data were analyzed using multiple

regression to assess the impacts of staff attitudes toward patients, families, job

attributes and organizational work environment on the contact they have with

clients' families. The results of the study showed that Providers' attitudes toward

patients had no significant effect on the frequency of their contact with patients.

Job and organizational factors were the strongest predictors. Specifically,

being a social worker or therapist and working on day and evening shifts were

associated with increased involvement with families. staff members' perceptions

of how well their unit functioned were also positively correlated with the

frequency of contact with families. Wright (1997) therefore concluded that the

organizational environment in mental health agencies has a significant influence

on the extent to which professionals become involved with patients and clients'

families. This indicated that organizational factors such as the attitude of staff in health facilities significantly affects affect their relationship with patients and quality of care delivery.

Perencevich, Sands, Cosgrove, Ellen, and Platt (2008) noted that although surgical site infections are known to cause substantial illness and costs during the index hospitalization, little information exists about the impact of infections diagnosed after discharge, which constitute the majority of SSIs. Therefore, patient questionnaire and administrative databases were used to assess the clinical outcomes and resource utilization in the 8-week postoperative period associated with SSIs recognized after discharge as a form of operational and organizational checks on patient services.

The results indicated that surgical site infections recognized after discharge was confirmed in 89 (1.9%) of 4,571 procedures from May 1997 to October 1998. Patients with SSI, but not controls, had a significant decline in SF-12 (Medical Outcomes Study 12-Item Short-Form Health Survey) mental health component scores after surgery. Patients required significantly more outpatient visits, emergency room visits, radiology services, readmissions, and home health aide services than did controls. This showed that patients needed to be kept in contact after been discharged from the hospital to check their level of progress and sustained the quality of care services rendered. This helped to assess the impacts of organizational factors such as level of care providers' training, nature of the physician-patient relationship, treatment procedures, diagnostic

procedures on the quality of healthcare delivered in the hospital. These organizational variables are related to the hypothesis in the present study on how significant organizational factors impact the quality of healthcare delivery in tertiary hospitals in North Central Nigeria.

Sun et al. (2017) conducted a longitudinal study of the length of waiting times in a public tertiary hospital in Southern China which developed comprehensive data collection systems. Sixty thousand (60,000) outpatients and seventy thousand (70,000) prescribed outpatients per month were targeted for the study during October 2014-February 2017. The longitudinal time series data analyzed using a segmented linear regression model to assess changes in levels and trends of waiting times before and after the introduction of waiting time reduction interventions. Pearson correlation analysis was conducted to indicate the strength of association between waiting times and patient satisfaction.

The results of the study indicated that the monthly average length of waiting time decreased for consultations and for filling prescriptions in the corresponding month when respective interventions were introduced. The trend shifted from baseline slight increasing to afterward significant reduction for filling prescriptions. There was a significant negative correlation between the waiting time of filling prescriptions and outpatient satisfaction towards pharmacy services. Sun et al. (2017) concluded that the interventions aimed at reducing waiting time and raising patient satisfaction in Fujian Provincial Hospital are effective. A long-lasting reduction effect on waiting time for filling prescriptions

was observed because of carefully designed continuous efforts rather than a one-time campaign and with appropriate incentives implemented by a task force authorized by the hospital managers. This case provides a model of carrying out continuous quality improvement and optimizing the management process with the support of relevant evidence in tertiary hospitals.

Oche and Adamu (2013) assessed the determinants of patients' waiting time in the General Out-Patient Department of a tertiary health institution in northern Nigeria. In this study, a cross-sectional study was carried out among new patients attending the general outpatient department of the Usmanu Danfodiyo University Teaching Hospital Sokoto, northwestern Nigeria. Data were collected using a structured questionnaire to elicit information from 100 patients who were recruited into the study using a convenience sampling method. Data collected were entered and analyzed using the Statistical Package for Social Sciences version 17.

Results of the research showed that 61.0% (59/96) of the respondents waited for 90-180 min in the clinic, whereas 36.1% (35/96) of the patients spent less than 5 min with the doctor in the consulting room. The most frequent reason for the long waiting time in the general outpatient department was a large number of patients with few healthcare workers. Oche and Adamu (2013) concluded that there is an urgent need to increase the number of health workers in the general outpatient department which serves as the gateway to the hospital if the aims of the Millennium Development Goals are to be realized in Nigeria.

Xie and Or (2017) noted that the issue of long patient waits had attracted increasing public attention due to the negative effects of waiting on patients' satisfaction with health care. They conducted a study to examine the associations between actual waiting time, perceived acceptability of waiting time, actual service time, perceived acceptability of service time, actual visit duration, and the level of patient satisfaction with care. Data for the study were collected using questionnaires from endocrinology outpatients visiting a major teaching hospital in China. The results of the study showed that actual waiting time was negatively associated with patient satisfaction regarding several aspects of the care they received.

Also, patients who were less satisfied with the socio-cultural atmosphere and the identity-oriented approach to their care tended to perceive the amounts of time they spent waiting and receiving care as less acceptable. Xie and Or (2017) reiterated that it is not always possible to prevent dissatisfaction with waiting, or to reduce waiting times by increasing resources such as increased staffing. However, several improvements in care services can be considered. Xie and Or (2017) recommended that it is important to provide clearer, more transparent information to keep patients informed about the health care services that they may receive and the health care professionals who are responsible for those services for improved quality of healthcare.

Umar, Oche, and Umar (2017) noted that the amount of time a patient waits to be seen is one factor that affects the utilization of health care services in

tertiary hospitals. Patient satisfaction has emerged as an increasingly important parameter in the assessment of the quality of health care; hence, healthcare facility performance can best be assessed by measuring the level of patient's satisfaction. This was a cross-sectional descriptive study carried out at the outpatients' departments of the Usmanu Danfodiyo University, Sokoto. A total of 384 new patients were randomly selected for the study.

A set of pretested questionnaires was used to extract information from the respondents; descriptive statistics were used for analysis. A total of 118 (31%) of the patients waited for less than an hour in the waiting room, while 371 (96.6%) spent less than 30 min with the doctor. More than half, 211 (55%) of the respondents were satisfied with the service delivery in the hospital, while only 63 (16%) of the respondents admitted to been given health talks while waiting to be seen by the doctor. Although the majority of the patients waited for more than 1 hour before been attended to, more than half of them were, however, satisfied with the services rendered to them. There is a need for health care institutions and providers to put in place measures aimed at reducing waiting time and ensuring patient satisfaction.

Francis, Dyks and Kanji (2014) conducted a study to determine the proportion of patients over the age of 65 admitted to orthopedics and general medicine services with diagnosis of a fall who experienced a change in the total number or dosage of potentially inappropriate medications (PIMs), as defined by the Beers criteria, upon discharge from hospital. The methodology included a

retrospective observational study that involved patients admitted to a tertiary care hospital with a diagnosis of a fall between January 1 and December 31, 2011. Those aged 65 years or older with at least one PIM on admission were eligible for inclusion. Data analysis included chi-square (χ^2) and Fisher testing, as well as multivariate analysis.

Results of the study showed that a total of 148 patients were included in the PIMs; with an overall increase in the dosage or total number of PIMs. However, the long wait time of patients receiving treatment was a significant challenge to quick PIMs treatment. This led to discontinued or reduced in the dosage of Benzodiazepines by patients a class of PIMs, in the health facility. Francis et al. (2014) concluded that one-quarter of patients admitted with falls had de-escalation of PIMs upon hospital discharge. Although dosage reduction or drug discontinuation may not be appropriate for all patients, a standardized approach to medication review during the hospital stay and improved prescriber education and awareness of PIM use among elderly individuals are warranted to enhance treatment procedures in the hospitals. These findings indicated the need for patient awareness on the use of certain drug prescriptions and staff-patient relationships as organizational factors in ensuring the delivery of quality healthcare services in the hospital.

Mosadeghrad (2014) researched the factors that influence healthcare quality in the Iranian context. To collect the needed data for the study, in-depth exploratory individual and focus group interviews were conducted with 222

healthcare stakeholders including healthcare providers, managers, policy-makers, and payers to identify factors affecting the quality of healthcare services provided in Iranian healthcare organizations. The results of the study indicated that the quality in healthcare is a production of cooperation between the patient and the healthcare provider in a supportive environment. Personal factors of the provider and the patient, as well as factors about the healthcare organization, healthcare system, and the broader environment affect healthcare service quality. Mosadeghrad (2014) concluded that healthcare quality could be improved by supportive visionary leadership, proper planning, education and training, availability of resources, effective management of resources, employees and processes, and collaboration and cooperation among providers.

Variation in Medical Facility and Organizational Challenges of Quality Healthcare Service delivery among Tertiary Healthcare Hospitals

The challenges confronting tertiary healthcare hospitals in the delivery of quality healthcare services differ from one healthcare hospital to another. However, sometimes, these challenges which range from medical facility needs, organizational factors, among other factors may be similar in some healthcare facilities depending on availability of resources and nature of the problems facing individual healthcare facilities. Oladejo, Umeh, and Egolum (2015) critically assessed the inherent challenges of tertiary healthcare facilities in southeast Nigeria, using a cross-sectional survey. Data for this study were collected using a

structured questionnaire, and the data were analyzed using percentages and Analysis of Variance statistics.

Results of the study indicated that the main challenges confronting the tertiary healthcare facilities are highly diverse network and range of functions which are needed to maintain operations as well as the complexity of the support services such as staff-patient relationship, staff remuneration, availability of medical facilities and staff training that make-up organizational and medical facility factors in the study. Tertiary healthcare hospitals render specialist services with sophisticated healthcare structures, equipment, and machinery that can only be maintained by experts. It was also observed in the study that medical facility needs and organizational challenges in the different tertiary hospitals did not differ significantly and needed to be improved upon for quality care delivery. The findings of this study, therefore, related to the medical and organizational challenges investigated in the study in North Central Nigeria in an attempt to ascertain if there is a significant association in medical and organizational challenges in tertiary hospitals in North Central Nigeria.

Bajpai (2014) assessed the challenges of delivering quality healthcare services in India by adopting a survey research design. Data for the study was collected using a questionnaire and analyzed using descriptive and inferential statistics. The results of the study showed that the average shortfall for availability for different types of medical facilities in different tertiary hospitals was between two to three times more in Jharkhand as compared to Odisha. The

deficit for varying levels of facilities in the hospitals was attributed to the availability of resources and facility management. Non-availability of facilities such as water and electricity can only be expected to undermine the functioning of existing facilities profoundly. Also, organizational factors such as doctor's training, payment, waiting time and staff-patient relationship varied between health facilities.

Bajpai (2014) noted that despite deficiencies in their training as managerial physicians, doctors have generally come to be perceived as responsible members of the health care team comprising paramedical and other support staff. They are expected to lead the way in problem-solving and supervising the work of other team members. As such, deficiency of doctors, besides impacting the delivery of curative services, may also reflect adversely in the overall functioning of the health team; thus, affecting the quality of healthcare delivery. These findings indicate the association between medical, organization factors and quality of healthcare services in tertiary hospitals, as also investigated in the present study on challenges of quality care delivery in North Central Nigeria.

Omoleke and Taleat (2017) examined the contemporary issues and challenges of tertiary hospitals in southwest Nigeria. The survey research design was adopted, and data was collected using a self-designed questionnaire. Results of the study showed that challenges such as obsolete medical equipment, poor remuneration, inadequate medical facilities, underfunding of the hospitals, poor

staff training were some of the medical and organizational challenges confronting the hospitals in the delivery of quality healthcare services. These challenges were found to be similar in the tertiary hospitals considered in the study and impacted negatively on the quality of healthcare services.

Patient's Perception of the Quality of Healthcare Services in Tertiary Hospitals

Umeano-Enemuoh et al. (2014) noted that the perception of healthcare quality by patients reflects the impression they have about the medical services they receive in hospitals. These authors observed in this study in a tertiary hospital in South-East Nigeria that the quality of care of the health facility was good (mean score = 3.45). The pharmacy department received the highest satisfaction level with a mean rating of 4.1 from patients. These findings related to the patients' perception of the quality of healthcare services in the hospital. Umeano-Enemuoh et al. (2014) reported that the most considerable displeasure of patients was the time spent at the facility (63.9%). 36.9% of respondents were pleased with the information given to them as a factor of importance. Participants were quite satisfied with the services provided as well as the quality of care by the different service providers of the health facility.

El Malky, El Wahab, El-Amrosy, and El Fiky (2016) assessed the relationship between patients' satisfaction with quality of care and their aggressive behavior in inpatient psychiatric hospitals. A questionnaire was used to collect data on patients' perceptions in the tertiary healthcare facility. The

research revealed that 52% of the respondents indicated low satisfaction with the quality of care they received. El Malky et al. (2016) opined that when patients have low satisfaction about the quality of care, they become aggressive which could be expressed in different forms.

Ehiemere, Nwaneri, Iheanacho, and Akpati (2017) in their study noted that the satisfaction of care consumers with the care they receive from healthcare providers had become one of the most important approaches to the measurement of the quality of care as opposed to the widely adopted method of clinical and administrative procedures. This is because a patient's satisfaction could serve as an index for compliance and non-compliance with the care regimen. Ehiemere et al. (2017) therefore, assessed patients' perception of the quality of care in a tertiary hospital in Enugu Nigeria using questionnaires and personal interviews. The study revealed that patients were satisfied with the care they received as regards their physical and psychological needs. Hence, patients indicated a positive mindset in the procedure and diagnostic attitudes of the physicians and nurses, especially as regards treatment procedures.

Iloh et al. (2016) in their study evaluated patients' satisfaction with the quality of care provided at the National Health Insurance Scheme (NHIS) clinic of a tertiary hospital in southeastern Nigeria. Data for the research were collected using a questionnaire and structured interviews. Iloh et al. (2016) reported that the overall satisfaction score of the respondents was 66.8%. Specifically, the respondents expressed satisfaction with the patient-provider relationship

(81.5%), patient-provider communication (79.9%), accessibility (74.2%), and hospital environment (68.2%) and dissatisfaction with hospital bureaucracy (48.8%) and patient waiting time (48.3%). Iloh et al. (2016) concluded that patients' satisfaction with services provided at the National Health Insurance Scheme (NHIS) clinic; with specific high ratings in the physician-patient relationship. However, the patients were dissatisfied with the time they wait to receive treatment, which remained a major factor of dissatisfaction.

Ezegwui, Okoye, Aghaji, Okoye, and Oguego (2014) evaluated patients' satisfaction with the care received from the University of Nigeria Teaching hospital in southeastern Nigeria. A questionnaire was used to collect the needed data from 307 patients. Patients were asked to indicate satisfaction with the time spent in the clinic, attitude of various categories of staff, physical facilities, cleanliness of the clinic and, willingness to come again to the clinic. Ezegwui et al. (2014) reported that respondents were more satisfied with the attitude of the doctors and nurses than that of revenue and medical records clerks. Most patients, 288 (93.8%) expressed satisfaction with the overall cleanliness of the eye clinic; 220 (71.7%) and 288 (93.8%) were not satisfied with the toilet facilities and cost of services, respectively. It was therefore observed by Ezegwui et al. (2014) that the general eye treatment procedure in the University Teaching hospital is good as reported by the patients. However, most patients showed dissatisfaction with the cost of receiving medical services and toilet facilities in

the hospital as a function of the physical facility available in the hospital, which needs improvement to ensure good quality of healthcare.

Sofaer and Firminger (2015) conducted a study to ascertain what patients want, need and experience in health care, as opposed to what professionals believe they need. The study, therefore, measured patients' perceptions of healthcare quality and the factors influencing their perception. Face to face interviews was used to collect qualitative data from patients for analysis. The findings of the study indicated that most patients were not satisfied with the quality of care services they received.

Iliyasu, Abubakar, Abubakar, Lawan, and Gajida (2015) assessed patients' satisfaction with medical services obtained from Aminu Teaching Hospital, Kano. Data were collected from structured questionnaires that were administered on a cross-section of 201 patients, and two focus group discussions held with patient relatives at Aminu Kano Teaching Hospital. Results showed that 83% of the patients were satisfied with the services received from Aminu Kano Teaching Hospital, while the remaining 17% were dissatisfied. Specifically, 88%, 88%, 87% and 84% of the patients were satisfied with patient-provider relationships, in-patient services, hospital facilities and access to care.

However, 30% and 27% of the patients were dissatisfied with waiting time and cost of treatment respectively. Patients and their relatives complained about delayed appointments, missing folders, missing laboratory results and long appointments for an ultrasound and other radiological investigations. It was

therefore concluded that with the high patient satisfaction notwithstanding, health workers need to consider patients as customers by being friendly and reducing waiting time for consultation and investigations. Widespread implementation of the National Health Insurance Scheme will also reduce the cost of services and drugs to patients.

Gebremedhn and Lemma (2017) assessed the level of patient satisfaction with peri-operative surgical services and associated factors. A structured Amharic version questionnaire and checklist were used for data collection. All patients who operated upon during the study period were included. Results showed that the overall level of patient satisfaction with perioperative surgical services was 98.1%, implying that patients' satisfaction for the quality of healthcare services was good. The findings of this study related to the present study because it assessed patients' perception of the quality of care they receive in the tertiary hospitals.

The variables that had an association with the outcome variable from the multivariate analysis were patient admission status, information about the disease and operation, and operation theatre staff's attention to the patients complain respectively. Gebremedhn and Lemma (2017) concluded that the level of patient satisfaction with perioperative surgical services was high compared with previous studies conducted in the country and other countries in the world. Health professionals need to emphasize information on care provision processes,

patients' health progress and patients' complaints to enhance the quality of healthcare delivery.

Mishra and Gupta (2014) evaluated the level of patient/relative satisfaction at a tertiary care teaching hospital and obtained feedback from them for improvement on the quality of healthcare services in India. A structured questionnaire was used to elicit information on satisfaction with the quality of healthcare from fifty patients and their relatives in a tertiary hospital for analysis. The findings of the study indicated among other things, that 82% of the respondents were satisfied with the service at the admission counter, while 81% were satisfied with room preparation at the time of admission. The nursing services satisfied 80% of people, while 92% were satisfied with the explanation about disease and treatment by the doctor. The behavior of nurses, doctors, and orderlies satisfied 92%, 92%, and 83% of people. The cleanliness of toilets satisfied only 49% while diet services satisfied 78% of people.

Mishra and Gupta (2014) inferred that the five major satisfied services were the behavior of doctors, explanation about disease and treatment, courtesy of the staff at admission counter, behavior and cooperation of nurses. The five major dissatisfied services were the cleanliness of toilets, quality of food, explanation about rules and regulation, the behavior of orderlies and sanitary attendant and room preparedness. Hence, dissatisfied services should be improved to enhance the quality of care services and patients' satisfaction in the hospital.

Fouogue et al. (2017) assessed patients' satisfaction with the process of care during laparoscopic surgery in a new tertiary hospital in Cameroon. The questionnaire was addressed to consenting patients (guardians for patients under 18) with complete medical records who underwent laparoscopy at the Douala Gynaeco-Obstetric and Pediatric Hospital in Cameroon from November 1, 2015, to July 31, 2016.

The results of the study showed that patients' perception of the overall care process was good with a mean satisfaction score of 6.8 ± 1.4. Main complaints were: long waiting time (73.3%), constraining geographical access (66.7%), and expensiveness (48.9%), indicating the perception of patients on the quality of healthcare they receive in the hospital. Fouogue et al. (2017) concluded that most patients in the hospital at the time of the research showed a high level of satisfaction, with complaints about the high cost of service and access to the facility.

Ekpe and Peter (2016) investigated patients' assessment and satisfaction of services rendered in the University of Uyo Teaching Hospital, Uyo, using the Surgery department as a case study. To collect the needed data, structured questionnaires were administered on 130 surgical patients using a systematic random sampling method, out of which 108 completed the questionnaire/interview and were included in the study. Findings of the study indicated, among other things, that 86.85% of the patients were satisfied with the services received from the University of Uyo Teaching Hospital, while 18.9% were

dissatisfied, the remaining 4.45% did not respond. In assessing the service units; 82.61%, 90.00%, 83.00%, 70.59%, 85.72%, 77.97%, 84.64% and 96.60% of the patients were satisfied with services rendered at accident and emergency unit, Pharmacy, laboratories, blood bank, surgical wards, surgical outpatient department (SOPD), medical records and theatre units of the hospital respectively.

Patients were generally satisfied with their relationship with staff and the quality of healthcare delivery in the hospital, as well as the ease of assessing care in the hospital. However, waiting time of more than one hour for services at the SOPD, A and E, Laboratories, Blood bank, medical records, and pharmacy were 41.7%, 22.72%, 31.03%, 21.05%, 16.67%, and 14.29% respectively. Also, 37.51% and 22.25% of the patients were dissatisfied with the cleanliness of conveniences and charges in the hospital respectively. Others are (7.4 %) of respondents who were not happy with the electricity supply in the hospital. Ekpe and Peter (2016) concluded that there is high patient satisfaction in the University of Uyo Teaching Hospital. Notwithstanding, health workers need to be more responsive by reducing waiting time for consultation, improving electricity supply and keeping the conveniences tidier and more comfortable for patients. A more robust plan should be put in place to sustain and enhance patients' quality of care in this hospital.

Osiya, Ogaji, and Onotai (2017) carried out a research to compare the level of patients' satisfaction with general practice care delivered at physicians-

manned general outpatient clinics at tertiary and primary health centers in Rivers State. The comparative cross-sectional study was conducted using the Patient Satisfaction Questionnaire (PSQ-18). A total of 1290 regular patients were recruited by systematic random sampling. Non-parametric analyses such as median satisfaction scores, chi-square, Kruskal-Wallis and Mann-Whitney U tests, were conducted using SPSS version 20 statistical software. Findings of the study revealed that patients who received care at the comprehensive health centre were significantly more satisfied in domains such as patient-doctor communication, interpersonal manner, accessibility and convenience, technical quality, financial aspects of care, and general satisfaction than their counterparts at the tertiary centre.

There was no difference with time spent during consultations in both centers. Other predictors of satisfaction were younger age, male gender, married, higher education, and those of the Muslim religious faith. Because of these, Osiya et al. (2017) concluded that patients who sought general practice care from the health centre were more satisfied than those who did at the tertiary centre. Therefore, there should be increased sensitization on patients' utilization of primary health care systems as the first contact, continuing, comprehensive and efficient personal and non-personal healthcare needs.

Summary of Reviewed Literature

Tertiary healthcare is the type of healthcare that offers advanced specialized medical investigation and treatment, as well as consultancy medical

services to patients, often based on a referral from primary and secondary healthcare hospitals. On the other hand, quality healthcare is the type of medical care that enhances the well-being of an individual and minimizes medical error (Flegel, 2015). For optimum provision of quality healthcare in tertiary hospitals, medical facilities are very essential; however, with an attendant cost effect of maintenance. Thus, the lack of healthcare facilities is likely to affect the treatment of many diseases. The lack of facilities in the tertiary hospitals affects the type of peri-operative medical care provided to patients. Some factors attributed with poor utilization and effectiveness of medical facilities includes low accessibility, obsolescence, break-down, affordability, availability of trained human resources, non-availability of consumables and spares, maintenance delays, limited working hours, and restricted availability. Therefore, the inadequacy of these machines to some extent negatively affected the quality of care delivered in hospitals.

The quality of healthcare services rendered in healthcare hospitals is largely dependent on some organizational factors that influence the workings of the healthcare system. Some of these factors are attitude of staff, admission procedure, physical environment, and diagnostic service delay. Studies have indicated that the overall level of organizational factors affecting the performance of healthcare professionals was high. The literature showed different levels of impact on the quality of healthcare delivered. In other studies that sought for the factors that influenced the quality of health care, the following were identified as

influencing the quality in healthcare: cooperation between the patient and the healthcare provider in a supportive environment, personal factors of the provider and the patient, as well as factors about the healthcare organization, healthcare system, and the broader environment. The following recommendations were proposed as ways to improve service provision: supportive visionary leadership, proper planning, education and training, availability of resources, effective management of resources, employees and processes, and collaboration and cooperation among providers.

The challenges confronting tertiary healthcare hospitals in the delivery of quality healthcare services differ from one healthcare hospital to another. However, sometimes, these challenges which range from medical facility needs, organizational factors, among other factors may be similar in some healthcare facilities. Studies had indicated the association between medical, organization factors and quality of healthcare services in tertiary hospitals. Likewise, the perception of healthcare quality by patients reflects the impression they have about the medical services they receive in hospitals. From the literature, the most considerable displeasure of patients was the time spent at the facility though they were quite satisfied with the services provided as well as the quality of care by the different service providers of the health facility. The satisfaction of consumers with the care they receive from healthcare providers had become one of the most important approaches to the measurement of the quality of care. This is because a

patient's satisfaction could serve as an index for compliance and non-compliance with the care regimen.

The literature indicated, among other things, that healthcare quality is dependent on a couple of factors that border on the physical facilities of a healthcare facility, caregiver relationship with patients, diagnostic and treatment procedures, available medical facilities, and time spent with physicians. However, there was a deficiency in the literature on the challenges of healthcare delivery in tertiary healthcare facilities in North Central Nigeria. The present study, therefore, sought to bridge such literature gaps to enhance social change by way of providing information for policy formulation and reduction in death rates in Nigerian tertiary hospitals. Chapter 3 is the methodology used in answering the research questions

Chapter 3: Research Methodology

Introduction

This study sought to assess the challenges of quality care delivery in tertiary hospitals of North Central Nigeria through a quantitative research method. This chapter focused on the methodology and covered the following topics: research design, study setting, sampling procedure, study population and sampling techniques, sample size, methods of data collection and, techniques of data analysis.

Research Design and Rationale

In this quantitative study, cross-sectional design was employed for collection and analysis of responses from health workers and patients in the tertiary health facilities in the study area. One of the indications of cross-sectional studies is that they are sometimes carried out to investigate associations between risk factors and the outcome of interest (Creswell, 2009). Cross-sectional approaches are limited, however, by the fact that they are carried out at one point in time and do not indicate a sequence of events (Creswell, 2009). The study used the self-developed Healthcare Quality Assessment Questionnaire (HQAQ) to collect data from patients and caregivers in different tertiary hospitals, after which the data were analyzed quantitatively and interpreted in order to answer the research questions.

According to Creswell (2009), quantitative research quantifies the problem of inquiry by generating numeric data or data that can be transformed into useful

statistics. The research into challenges of quality healthcare delivery in tertiary hospitals in North Central Nigeria sought to measure variables, such as organizational factors and facility needs in some tertiary hospitals. Measurements about adequacy can better be expressed in quantitative form.

It is not enough to state the number of medical facilities (such as diagnostic machines, scanning machines, radiographic machines, rehabilitation machines etc.) in a hospital without stating their availability. In the same light, expressing the opinions and attitudes of people regarding the quality of medical services in a manner that gives the reader good insight into the problem to be solved enables realistic measures of the variables (Robson, 2015). Therefore, the study was designed as follows:

1. Using the HQAQ to collect quantitative data from healthcare providers, paramedical staff, administrative staff, and patients from tertiary hospitals.

2. Adopting appropriate statistical tests and procedures that enhanced consummate data analysis and testing of hypotheses.

3. Presenting and discussing the results in a manner that reflected a good understanding of the subject matter as well as answered the research questions.

Study Population

This study considered three tertiary hospitals in North Central Nigeria, the University Teaching Hospital Jos, Plateau State, National Hospital Abuja and

Benue State University Teaching Hospital, Makurdi. The staff and patients that were currently working and receiving treatment at these hospitals at the time of this research respectively constituted the study population. Therefore, the criterion of inclusion was to be a staff in any of the hospitals or patients currently receiving treatment in any of the hospitals.

Sampling Procedure and Sample Size

Sampling is a necessary procedure in scientific research. It is a process of selecting units of analysis or samples from a population considered in research. Also, by studying the sample drawn from the population, inferences can be made about the population (Trochim, 2006). This study considered staff of University of Jos Teaching Hospital, National Hospital Abuja and Benue State University Teaching Hospital as the study population from which samples were selected. This study adopted a simple random sampling method. The simple random sampling method is a type of sampling technique that each individual has an equal chance of being chosen from the population at any level of the sampling process (Trochim, 2016).

The sampling method was therefore unbiased and considered the best-fit sampling method for this research because it availed the researcher an opportunity to select randomly, the staff in the health facilities found for this study to collect data that were valid for this research. Also, it enhanced the generalization of findings on the study population (Creswell, 2009). Hence, the random sampling method was used based on the table of random numbers to

select 20 patients, 15 doctors, 10 nurses, 10 pharmacists, 20 paramedical and 10

administrative staff as respondents in each of the three hospitals, making a total

of 85 respondents in each tertiary hospital.

To ensure randomness in using a table of random numbers, the number

of staff and patients at the time of this research was determined; and given

numbers. The total number of staff working in each of the tertiary hospitals

selected for this study was between 300 to 400, and patients were between 100 to

200. staff was then assigned numbers and selected randomly using numbers that

were not more than 500 from the columns and rows on the table of random

numbers for determination of sample size. This process was also repeated for the

selection of patients using assigned numbers that were not more than 200 on the

table of random numbers. Hence, a total of 255 respondents were randomly

selected for data collection in this study.

Procedures for Recruitment, Participation and Data Collection

This research was carried out in the three leading tertiary health facilities

in North Central Nigeria, namely: Jos University Teaching Hospital, Plateau

State, Nigeria, National Hospital in the capital city of Abuja, and Benue State

University Teaching Hospital, Makurdi. The procedures for recruiting

participants for this study were simple. Criteria for inclusion were that

participants must be a medical doctor working in any of those facilities, a nurse, a

pharmacist, a paramedical staff, an administrative officer working in any of those

health facilities, in and outpatients who received treatment at the time of the

research. All the participants were administered questionnaires in paper format to complete and return to the researcher anonymously. Patients that were selected for perception opinion on the quality of health services they received were based on their ability to participate in the research. This implied that critically ill patients did not qualify for the study and were not selected, but others that could communicate with the researcher or research assistants were selected to participate in the study.

Participants were asked to provide information on their socioeconomic attributes such as sex, age, income levels, and employment status, as well as information on medical facilities and organizational factors, especially as they relate the quality of healthcare services in the tertiary health facilities. To ensure participants' consent to engage in this research fully, approvals to research the tertiary hospitals were collected from the government via the hospital management boards. These approvals served as the basis upon which this research was conducted in those hospitals to avoid a situation where participants would not be allowed to participate in the study. Once participants completed the questionnaire, they were free to leave the study or disengage from participating at the moment since they had finished the primary task given to them. This is because the study was quantitative; and in this research, a questionnaire was used as an instrument for data collection.

The method of data collection in this study was through the use of a self-designed questionnaire, the HQAQ. With regard to this, healthcare providers,

paramedical staff, administrative staff and available patients were administered with HQAQ questionnaire to complete as regards organizational factors/variables such as level of care providers' training, nature of the physician-patient relationship, treatment procedures, diagnostic procedures, number and categories of staff and payment schedules. Also, information was collected on facility needs, such as laboratory equipment available, number of beds, types of diagnostic machines among others from staff of the tertiary health facilities. While information on perception of the quality of care in the hospitals was collected from patients that were currently receiving care at the time of this research. The collected data was then analyzed to reflect the major factors impeding quality healthcare delivery in the study area. Patients' opinions were sampled about the quality of healthcare services they receive in the tertiary hospitals for analysis.

Pilot Study

A pilot study was carried out in this research as a means to validate the self- designed questionnaire as the means of data collection. A pilot study was conducted on a small initial sample (i.e., 60 respondents) before considering the entire sample drawn from the study population. This helped to ascertain the need to maintain or change the content of the questionnaire for appropriate data collection. Data was collected for the pilot study using the HQAQ. Twenty copies of the questionnaire were administered to each of the three tertiary health facilities, making a total of 60 initial samples. The questionnaire was

administered to healthcare providers, paramedical and administrative staff, and patients to collecting information on organizational factors, medical facilities and patients' perception of the quality of healthcare delivered in the health facilities. From the outcomes of the pilot study, it became necessary to restructure some of the questions in the questionnaire, especially those on the effects of medical facilities and organizational factors on the quality of healthcare services to be able to test the postulated hypotheses.

Types and Sources of Data

Data was collected from staff including healthcare providers and paramedical staff, as well as available patients at Benue State University Teaching Hospital, Makurdi Benue state, National Hospital Abuja and Jos University Teaching Hospital Jos, which are the three popular and leading tertiary care providers in the region. In this study, only quantitative data was collected on organizational factors such as level of care providers' training, nature of the physician-patient relationship, treatment procedures, diagnostic procedures, number and categories of staff and payment schedules. Also, quantitative data was collected on facility needs, such as laboratory equipment, number of beds, types of diagnostic machines, among others. Quantitative data was also collected on the perception of users' satisfaction with healthcare services in tertiary health facilities in the study area. Data on the above-mentioned variables were to ensure that the research questions are answered.

Instrument for Data Collection

  To collect the quantitative data needed for this research, a self-designed HQAQ was used. Creswell (2009) defined a questionnaire as a set of questions administered to elicit information from respondents on the subject matter to answering research questions and test postulated hypotheses. The HQAQ was explicitly developed for this study by the researcher, was validated using small initial samples or pilot study. The questionnaire is a practical data collection tool mostly used for quantitative research because of its tendency to convey closed-ended questions or standard questions that generate numeric data for statistical analysis (Creswell, 2009). Hence, the HQAQ questionnaire was used to collect quantitative data on the variables in my study to suit the quantitative research method proposed for the study.

  The questions in the questionnaire were in the closed-ended form to enhance the collection of quantitative information that was used to answer the research questions. To ensure external validity in the research, respondents selected from the population using simple random sampling method were encouraged to fully participate in the study to the finish (Trochim, 2016). Also, confidentiality was assured to respondents to enhance data collection that was valid in this research (Creswell, 2009). The questions in the questionnaire were also straight forward and avoid of encumbrances for easy understanding and response, to enhance content validity. Information collected using the self-

designed HQAQ was summarized, typed in Microsoft Word and saved in an external disc for analysis. The HQAQ questionnaire is attached as Appendix E.

Data Analysis Plan

The information collected in this study was quantitative data on the challenges of delivering quality care in tertiary hospitals in Nigeria using a questionnaire developed by the researcher, which was validated using a small initial sample. The quantitative data such as socioeconomic characteristics of respondents was collected on a nominal scale. Variables such as patient's perception of the quality of care; and physician-patient relationships were collected on an ordinal scale. Other variables, such as the availability of medical facilities and patient's wait time, were collected on ratio scales for statistical analysis.

The variables measured were coded in this format. Socioeconomic characteristics were coded as follows: age (1 = 19-37 years, 2 = 38-56 years, 3 = 57-75 years, 4 = 76 years and above); sex (1 = male, 2 = female); educational qualification (1 = no formal education, 2 = primary education, 3 = secondary education, 4 = sub-degree, 5 = Bachelor's degree, 6 = Master's degree, 7 = Doctorate degree); employment status (1 = not employed, 2 = self-employed, 3 = part-time employed, 4 = full-time employed); monthly income (1 = less than ₦30,000, 2 = ₦31,000-₦61,000, 3 = ₦62,000-₦92,000, 3 = ₦93,000-₦123,000, 4 = ₦124,000 and above). The four-point Likert scale was used to assess patients' perception of satisfaction with the quality of healthcare they received: A four-

point Likert scale was used, with scores ranging from 1 (*poor*) to 4 (*excellent*).

G*power software was useful in determining the sample size for the study, which

included two subgroups (staff and patients) in three tertiary hospitals. According

to Cunningham and McCrum-Gardner (2007), G*power software is significant in

determining the sample size for research, power values, as well as the small,

moderate and large effect sizes between different groups such as staff and

patients in the various tertiary healthcare hospitals. For this research, the

moderate effect size was considered for analyzing data obtained from

respondents using this online source http://www.gpower.hhu.de. The statistical

analyses were based on an alpha level of 0.05, with a power value of 95%. These

statistical analyses were done in line with the postulated hypotheses for the

research.

In analyzing the level of association between medical facilities and quality

of care, the chi-square analysis was used, and this was based on SPSS version

21.0. The chi-square statistics, therefore, were used to test hypotheses one and

two. To effectively analyze the quantitative data, descriptive statistics (for

example, mean and percentages) were used to depict variations in the data set

(Creswell, 2009). The chi-square statistic is given as:

$$X = \frac{\sum(E - O)^2}{E}$$

where 'E' is the expected scores and 'O' is observed scores that represent the view

of respondents.

Also, to test the third and fourth hypotheses, the ANOVA statistics was used to find out if there was a significant association in medical and organizational factors between the three tertiary healthcare hospitals considered in this study. More so to find out, if there was a significant association in perceptions of patients on the quality of care between the tertiary hospitals. The independent groups considered for the ANOVA analysis were the three tertiary healthcare hospitals considered on a nominal scale. That is, 1 = Benue State University Hospital, 2 = Jos University Teaching Hospital, 3 = National Hospital Abuja. The continuous dependent variables used were the number of different medical facilities in the hospitals such as bed space, scanning machines, rehabilitation machines, and radiographic machines. Also, ranked responses on organizational factors such as staff level of training, staff-patient relationship and staff perception of salary paid.

The ANOVA was done using SPSS, version 21.0, and was relevant in this study because of the three tertiary healthcare hospitals (independent variables) from which many dependent variables were collected. Three tertiary hospitals were considered for data collection as independent variables on a nominal scale with three levels. While variables relating to the medical facility and organizational challenges were considered as dependent variables for which ANOVA was used to examine if there was a significant association between the tertiary hospitals on the challenges faced in the delivery of quality healthcare services. It is interesting to note that, with the use of these statistical tests, it was

possible to analyze the data in a manner that reflected the major factors influencing the poor quality of service delivery in Nigeria.

Threats to Validity

Threats to validity in research are some of the issues that had severe impacts on the authenticity and correctness of research methods. It is, therefore, necessary to identify such problems and adopt measures of overcoming them to aid the validity of the research.

External Validity

Threats to external validity in this research related to issues bothering on the selection of variables for the research and procedure for the selection of respondents in this research. The variables of interest in this research were specifically meant to answer the research questions. Hence, the variables are on medical facilities, organizational variables and how they relate to delivering quality healthcare services. The variables were selected because of their relevance in answering the research questions in order to overcome threats to external validity. To enhance appropriate responses from the respondents in the course of the research, selected respondents were guided on how to answer the questions in the questionnaire. Also, the questionnaire was simple and straight forward to avoiding perplexity in the course of completing the questionnaire.

Internal Validity

Internal validity in this research related to statistical tests and procedures that were used in data analysis and selection maturation of participants or

respondents. To ensure internal validity in this research, appropriate statistical techniques were adopted in data analysis. Because of the nature of data that was collected, the chi-square and ANOVA statistics were used to analyze data and test the postulated hypotheses. The respondents in the study were matured to leave the research, once they had correctly completed the administered questionnaire and returned to the researcher or research assistants. Where there were complexities in completing the questionnaire, clarifications were made by the researcher to enhancing the appropriate completion of the questionnaire. In such situations, selected participants were not matured to exit the research, until such issues were addressed.

Construct Validity

Construct validity in this research involves issues such as appropriateness of the constructs in the instrument for data collection and the ability to interpret correctly the results derived from statistical analyses. In order to avoid these threats, the constructs in the research instrument (questionnaire) were based on a careful formulation of questions that bothered on the variables of interest. Hence, the constructs in the form of questions were formulated to answer the research questions. Also, a threat to construct validity was overcome by conducting a pilot study using small initial samples to ascertain the appropriateness of the data collection instrument or its content. With regards to the correctness in interpreting results from statistical analyses and the making of inferences, online study modules on G*power analysis and SPSS were

downloaded and studied to enhance understanding and usage of the statistical tools.

Ethical Procedures

Ethical concerns are very important in this research especially as regards getting approvals to carry out research in Jos University Teaching Hospital, Jos, National Hospital Abuja and Benue State University Teaching Hospital Makurdi. To this effect, Approval letters were granted to me by the government through the hospital management boards to allow the conduct of this research and full compliance by the staff of the health facilities. The approval letters are attached as Appendix A1, A2 and A3. The study proposal was likewise submitted to Walden University's Institutional Review Board (IRB) for review and approval (approval number was 05-02-19-0376466). Also, the selected participants for this research were assured of full confidentiality as regards the information that was released in the course of the research. This was to ensure full compliance by the participants in completing the questionnaire.

Summary and Transition

In this quantitative study, cross-sectional design was employed for collection and analysis of responses from health workers and patients in the tertiary health facilities in the selected study areas viz: University Teaching Hospital Jos, Plateau State, National Hospital Abuja and Benue State University Teaching Hospital, Makurdi. Study population were selected by simple random sampling after G*power software was useful in determining the sample size for

the study. Criteria for inclusion were that participants must be a medical doctor working in any of those facilities, a nurse, a pharmacist, a paramedical staff, an administrative officer working in any of the health facilities, and in and outpatients who received treatment at the time of the research. Data collection was by the use of HQAQ instrument. The instrument was validated by a pilot study prior the onset of the study. Data analysis was by the use of SPSS version 21.0. The statistical analyses were based on an alpha level of 0.05, with a power value of 95%. Threats to both internal and external validity were addressed and the whole procedure was done after obtaining approval from Walden IRB. This chapter paves the way for the presentation of the research results and analysis in Chapter 4.

Chapter 4: Results

Introduction

This chapter focused on the presentation and analysis of the collected data including information on socioeconomic characteristics of respondents, the effects of medical facilities on the quality of healthcare delivery at tertiary hospitals in North Central Nigeria, the impact of organizational factors on quality of healthcare delivery in the study area, the difference in medical facility and organizational challenges of tertiary health facilities in the study area. and patients' perception of quality of healthcare services in tertiary hospitals in North Central Nigeria. Two hundred and fifty-five questionnaires were administered to both staff and patients in the three selected tertiary hospitals and all were completed.

Socioeconomic Characteristics of Respondents

Data on socioeconomic characteristics of respondents included age, gender, educational level, employment status, and monthly income of respondents (see Table 1). Table 1 shows the occupational status of the respondents. From Table 1, it is observed that 195 (76.47%) of the selected participants in this study were staff of tertiary hospitals currently working there while 60 (23.53%) of the participants were patients receiving treatment in the sampled tertiary hospitals at the time of this study.

Table 1

Identity of Respondents in the Teaching Hospital

Identity in the hospital	Frequency	(%)
Doctor	45	17.65
Nurse	30	11.76
Pharmacist	30	11.76
Paramedical staff	60	23.53
Administrative staff	30	11.76
Patients	60	23.53
Total	255	100.00

The higher amount of staff selected as respondents in this research compared to patients was to ensure that adequate number of staff were chosen for data collection; to collect the needed information on the challenges of delivering quality healthcare services in the hospitals. The lower number of patients selected to participate in the study was for a perception study to elicit their opinion about the quality of care they receive in the tertiary hospitals of North Central Nigeria.

Table 2 indicates that 84 (32.94%) of the respondents were between the ages of 19-37 years, 115(45.09%) of the respondents were between the ages of 38-56 years, 49(19.22) of the respondents were of the ages 57-75 and 07(2.75%) of the respondents were 76 years and above. The higher number of respondents between the ages of 19-37 years (84) and 38-56 years (115) compared to other age classes indicated the youthful nature of the staff and patients that work and patronize the tertiary hospitals respectively. This has positive implications on the

productivity of healthcare services delivered in those hospitals. The vibrant workforce has the potentials of self-development and expertise in healthcare services, with a direct impact on improved quality service delivery.

Table 2

Age of Respondents

Age (years)	Frequency	(%)
19 – 37	84	32.94
38 – 56	115	45.09
57 – 75	49	19.22
76 years and above	07	2.75
Total	255	100.00

Table 3

Gender of Respondents

Gender	Frequency	(%)
Male	168	65.88
Female	87	34.12
Total	255	100.00

The higher number of males compared to female respondents in the study indicated that more male staff and patients work and patronize the tertiary hospitals respectively. Table 4 shows that 2 (0.78%) of the respondents had no formal education, 03(1.78%) of the respondents had primary education only. 6 (2.35%) of the respondents had secondary education as their highest level of education and 25 (9.80%) had a sub-degree such as diploma, Ordinary National

Diploma (OND), National Certificate in Education (NCE) as their highest educational certificates. While 183 (71.76%) of the respondents had a bachelor's degree, 33 (12.94%) had a Master's degree and only 3 (1.78%) of the respondents had a doctorate degree.

Table 4

Educational Level of Respondents

Educational level	Frequency	(%)
No formal education	02	0.78
Primary education	03	1.78
Secondary education	06	2.35
Sub-degree	25	9.80
Bachelor's degree	183	71.76
Master's degree	33	12.94
Doctorate degree	03	1.78
Total	255	100

From the above analysis, it is observed that only a few respondents had no formal education, primary education, and secondary education. Most of these respondents were patients who came to receive treatment in hospitals. A high number of respondents were observed to have a bachelor's degree (183) and these respondents comprised mostly staff of the hospitals who were currently working at the hospitals at the time of this research. Most of the doctors, nurses, administrative and paramedical staff working in the hospitals had a bachelor's degree, with only a few having a higher degree (Master's degree and Ph.D.); and

this implies that most of the staff need further training for improved quality of care delivery in tertiary hospitals in the study area.

Table 5

Employment Status of Respondents

Employment status	Frequency	(%)
Not employed	11	4.31
Self-employed	25	9.80
Part-time employed	58	22.75
Full-time employed	161	63.12
Total	255	100

Most of the respondents who reported to be unemployed and self-employed were patients who were receiving healthcare services in the tertiary hospitals at the time of this research. Respondents who reported part-time and full-time employment were mostly staff working at the hospitals, with few patients. The high number of respondents (161) who reported part-time and full-time employed indicated that the tertiary hospitals had a good number of staff who were always on duty to ensure that healthcare services were delivered to patients as at when due. This scenario has a positive impact on the quality of healthcare services in the hospitals.

Table 6 shows that 10(3.92%) of the respondents earned less than ₦30,000 monthly. 16 (6.27%) of the respondents earned between ₦31,000 - ₦61,000. While, 54 (21.18%) of the respondents earned between ₦62,000 – ₦92,000, 78

(30.59%) earned between ₦93,000 – ₦123,000 and 97 (38.04%) of the

respondents earned ₦124,000 and above.

Table 6

Monthly Income of Respondents

Monthly income (₦)	Frequency	(%)
Less than 30,000	10	3.92
31,000-61,000	16	6.27
62,000-92,000	54	21.18
93,000-123,000	78	30.59
124,000 and above	97	38.04
Total	255	100

Note. ₦ = Nigerian naira.

It is observed from the analysis that a high number of respondents

reported earning between ₦93,000 – ₦123,000 (78) and ₦124,000 and above

(97) respectively. Most of these respondents were staff working in the hospitals,

with a few of the respondent's patients. Most of the staff reported not to be

satisfied with their level of income and desired improved income by way of

increased salaries. This is likely to improve their level of commitment to work as

well as the potentials for a better quality of healthcare services.

The Effects of Medical Facilities on the Quality of Healthcare Delivery

by Tertiary Hospitals in North Central region of Nigeria

The result of the effects of medical facilities on the quality of healthcare

services in tertiary hospitals in North Central Nigeria is presented in Table 7.

Table 7

Number/Adequacy of Medical Facilities in the Hospitals

	Medical Facilities				
Tertiary hospital	Diagnostic machines	Scanning machines	Radio-graphic machines	Bed facilities	Diagnostic, treatment, and rehabilitation machines
National Hospital Abuja	6-10 (range) (A= 8)	6-10 (range) (A = 8)	6-10 (range) (A= 8)	50 and above	6-10 (range) (A= 8)
Jos University Teaching Hospital	6-10 (range) (A =8)	1-5 (range) (A = 3)	1-5 (range) (A = 3)	50 and above	1-5 (range) (A= 3)
Benue State University Teaching hospital	1-5 (range) (A = 3)	6-10 (range) (A=8)	1-5 (range) (A = 3)	50 and above	1-5 (range) (A=3)

Note. [A] implies the average number of medical facilities reported to be in the different tertiary healthcare hospitals.

Table 7 contains information on the number/adequacy of medical facilities

such as diagnostic machine, scanning machine, radiographic machine, bed

facility, treatment, and rehabilitation machine from the three tertiary hospitals in

North Central Nigeria included in the study.

The above analysis indicated that the tertiary hospitals in North Central

Nigeria contained medical facilities that were inadequate, especially with regards

to diagnostic machines, scanning machines, radiographic machines, and

rehabilitation machines. The number of these machines currently present at the

tertiary hospitals was reported by the respondents to be grossly insufficient for good quality and prompt healthcare service delivery.

Table 8 contains information on the condition of medical facilities in the tertiary hospitals in North Central Nigeria. The data was collected from a total of one hundred and ninety-five staff (195) of the hospitals excluding the patients. The reason was to elicit firsthand information about the medical facilities from those who were using the medical facilities. 13(6.67%) of the respondents reported that the medical facilities in the hospitals were in poor condition. While, 114(58.46%) of the respondents reported fairly good condition of the medical facilities; and 51(26.15%) of the respondents noted that the medical facilities such as diagnostic, scanning machines and bed facilities were in good condition. Also, 17(8.72%) of the respondents reported that the medical facilities were in very good condition.

Table 8

Condition of Medical Facilities in The Tertiary Hospitals

Medical facility	Condition of Medical Facilities (%)				
	Poor	Fairly good	Good	Very good	Total
Diagnostics machines	03(5.35)	35(62.50)	13(23.21)	05(8.93)	56(28.72)
Scanning machines	01(2.50)	25(62.50)	10(25.00)	04(10.00)	40(20.51)
Radiographic machines	02(4.65)	24(55.81)	12(27.91)	05(11.63)	43(22.05)
Bed facilities	05(13.51)	21(56.76)	09(24.32)	02(5.41)	37(18.97)

Diagnostic, treatment and rehabilitation machine	02(10.53)	09(47.37)	07(36.84)	01(5.26)	19(9.74)
Total	13(6.67)	114(58.46)	51(26.15)	17(8.72)	195(100)

It is observed from the above analysis that a high percentage of respondents reported fairly good (58.46%) and good (26.15%) conditions of the medical facilities in the tertiary hospitals in North Central Nigeria compared to others who reported either poor or very good conditions. The implication of this is that the medical facilities in use at these tertiary hospitals were either fairly good or good, and the tendency of those that are fairly good in performing correctly their functions is most times in doubt because of their high risk to provide erroneous results. Notwithstanding, those in good condition were likely to achieve better than those in fairly good condition. This situation of the poor performance of medical facilities was reported by participants who took part in this research during the process of data collection and during the pilot study as some of the observable effects of medical facilities on quality of care.

Table 9 contains information on the effects of medical facilities in tertiary hospitals on the quality of healthcare service delivery. 70(35.89%) of the respondents reported that the medical facilities such as diagnostic machines, scanning machines, and radiographic machines gave rise to fairly accurate diagnostic results. It is also observed in Table 9 that 36(18.46%) of the respondents reported effective diagnostic results by the medical facilities.

65(33.33%) of the respondents indicated that the medical facilities resulted to delay in diagnosis because of their poor condition. Poor quality imagery of the scanning and radiographic machines was reported by 13(6.67%) of the respondents; while, 11(5.64%) indicated that the scanning and radiographic machines had good quality imagery.

Table 9

The Effects of Medical Facilities on Quality of Healthcare Services in Tertiary Hospitals

Medical facilities	Effects of medical facilities on quality of healthcare (%)					
	Fairly accurate diagnosis results	Effective diagnosis results	Delay in diagnosis	Poor quality imagery	Good quality imagery	Total (%)
Diagnostics machines	23 (46.94)	11 (22.45)	15 (30.61)	-	-	49 (25.13)
Scanning machines	17 (31.48)	8 (14.81)	14 (25.93)	8 (14.81)	7 (12.96)	54 (27.69)
Radiographic machines	13 (26.53)	7 (14.29)	20 (40.82)	5 (10.20)	4 (8.16)	49 (25.13)
Diagnostic, treatment and rehabilitation machine	17 (39.53)	10 (23.26)	16 (37.21)	-	-	43 (22.05)
Total (%)	70 (35.89)	36 (18.46)	65 (33.33)	13 (6.67)	11 (5.64)	195 (100)

It is evident from the above analysis that the medical facilities in tertiary hospitals had effects on the quality of healthcare services in the tertiary hospitals. Some of the major observable effects are the fairly accurate diagnosis and delay

in diagnosis of the medical facilities as reported by 35.89% and 33.33% of respondents, respectively.

Test of Hypothesis 1

H_0:   Medical facilities in the tertiary hospitals do not have significant with the quality of healthcare services in North Central Nigeria.

H_1:   Medical facilities in the tertiary hospitals have a significant association with the quality of healthcare services in North Central Nigeria

To test Hypothesis 1, data in Table 9 was used. The chi-square statistics were used to test the hypothesis in SPSS version 21.0. The results are contained in Tables 10 11 and 12. The chi-square statistics were used to find out if medical facilities had a significant association with the quality of healthcare services in tertiary hospitals in North Central Nigeria.

Table 10

Case Processing Summary

| | Cases | | | | | |
| | Valid | | Missing | | Total | |
	N	Percent	N	Percent	N	Percent
Medical facilities Effects of medical facilities on quality of healthcare	195	100.0%	0	0.0%	195	100.0%

Note. Level of significance: 0.05.

Table 11

Medical Facilities on Quality of Health Care

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	176.250[a]	169	0.034
Likelihood Ratio	81.013	169	1.000
Linear-by-Linear Association	0.532	1	0.630
N of Valid Cases	195		

Note. [a] 190 cells (86.0%) have expected count of more than 5. The minimum expected count is 0.15. Level of significance: 0.05

Table 11

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	2.97	0.034
	Cramer's V	0.82	0.034
N of Valid Cases		195	

Note. Level of significance: 0.05

Results of the statistics indicated that there is a significant association between medical facilities and quality of healthcare services of tertiary hospitals in North Central Nigeria as revealed by a probability value (p =0.034), which is less than 0.05, Df =169, χ^2 = 176.250, p =0.034 (Table 11). The null hypothesis was therefore rejected, and the alternative hypothesis accepted that "medical
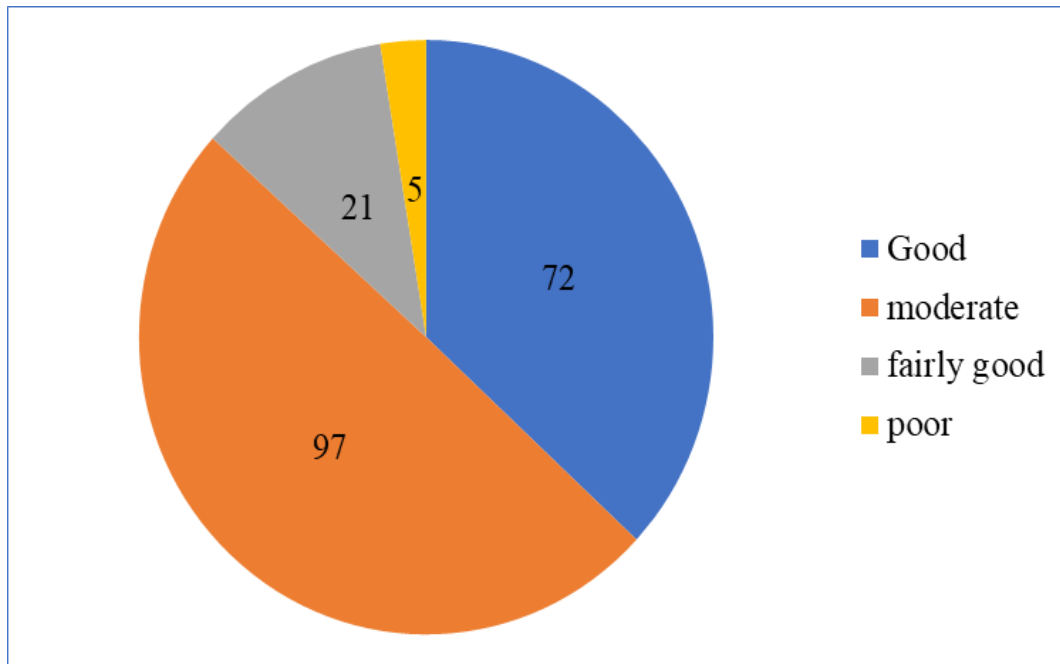
facilities in the tertiary hospitals have a significant association with the quality of healthcare services in North Central Nigeria."

The effect size of medical facilities on the quality of healthcare services, as revealed by the Cramer's V test is 0.82. This presupposed that 82% of the effects observed on the quality of healthcare services as shown in Table 9 are accounted for by medical facilities. The linear by linear association is 0.53, implying a positive and strong relationship between medical facilities and the quality of healthcare services of tertiary hospitals in North Central Nigeria. Therefore, it is inferred that the better the operations of the medical facilities, the better the quality of healthcare services in the tertiary hospitals. This is because good quality of healthcare services in the tertiary hospitals largely depends on the quality of services that can be provided by the medical facilities in the hospitals.

The Impacts of Organizational Factors on Quality of Healthcare Delivery in the Tertiary Hospitals in North Central Nigeria

Information on the impacts of organization factors on the quality of healthcare services was sourced from 195 staff of the tertiary hospitals in North Central Nigeria. The data is presented and analyzed below.

Figure 1 is a pie chart that contains information on the level of training of staff in the tertiary hospitals in North Central Nigeria. Seventy - two (36.92%) of the respondents reported that their level of training is good. Ninety – seven (49.74%) and 21 (10.77%) of the respondents indicated that their level of training is moderate and fairly good respectively.

Figure 1. Staff level of training in the tertiary hospitals

Only 5 (2.56%) of the respondents reported to have a poor level of training and hence required more training that could improve the quality of healthcare services in the tertiary hospitals. It is observed in Figure.1 that a high number of staff are not contented with their level of training as indicated by "moderate" and "fairly good" responses. This implied that they need further training to enhance their ability for effective and quality care delivery in tertiary hospitals.

Figure 2. Staff-patient relationship in the tertiary hospitals

Figure 2 is a bar graph showing information on the staff-patient relationship in the tertiary hospitals. A hundred and fifteen (58.97%) of the respondents (staff) reported having a good relationship with the patients. Seventy – six (38.97%) respondents indicated that their relationship with patients is fair; while, 4 (2.05%) of the respondents reported to have a poor relationship with the patients. The high percentage of respondents who reported to have "good" and "fair" relationships indicated that staff of the tertiary hospitals have a positive relationship with patients, and this is capable of enhancing effective quality healthcare delivery in the tertiary hospitals.
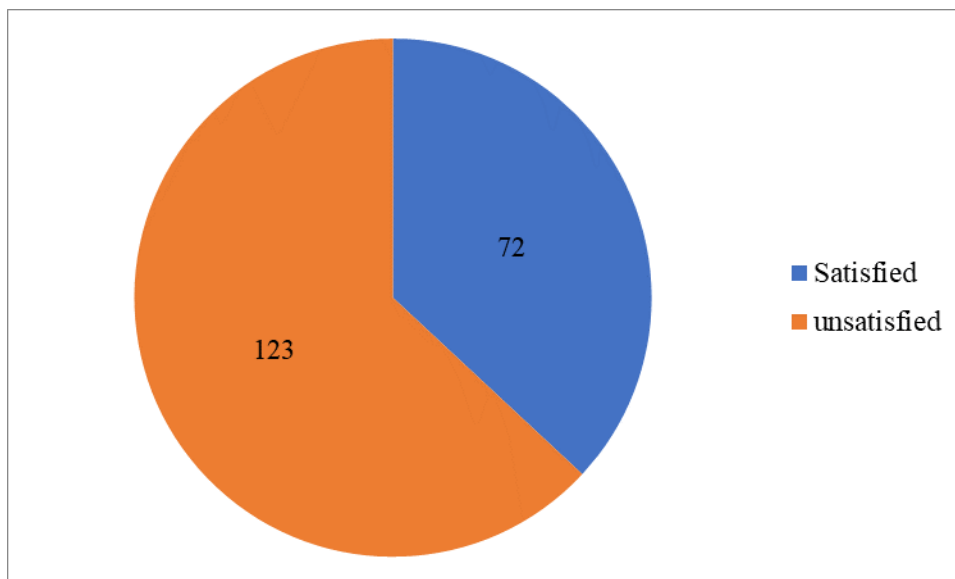
Figure 3. Staff satisfaction with diagnostic and treatment procedures in the tertiary hospitals

Figure 3 contains data on staff level of satisfaction with diagnostic and treatment procedures in the tertiary hospitals. Figure. 3 shows that 123 (64.10%) of the respondents reported being unsatisfied with the diagnostic and treatment procedures in the tertiary hospitals where they work. However, 72(36.92%) of the staff who participated in this research indicated that they were satisfied with the diagnostic and treatment procedures where they work. Pertinently, the higher percentage of respondents who reported to be unsatisfied (64.92%) compared to those who were satisfied (36.92%) with the diagnostic and treatment procedures was an indication of the fact that the diagnostic and treatment procedures in the National Hospital Abuja, Jos University Teaching Hospital and Benue State University, Makurdi are not good enough. This is likely to impact negatively on the quality of healthcare services in the hospitals.
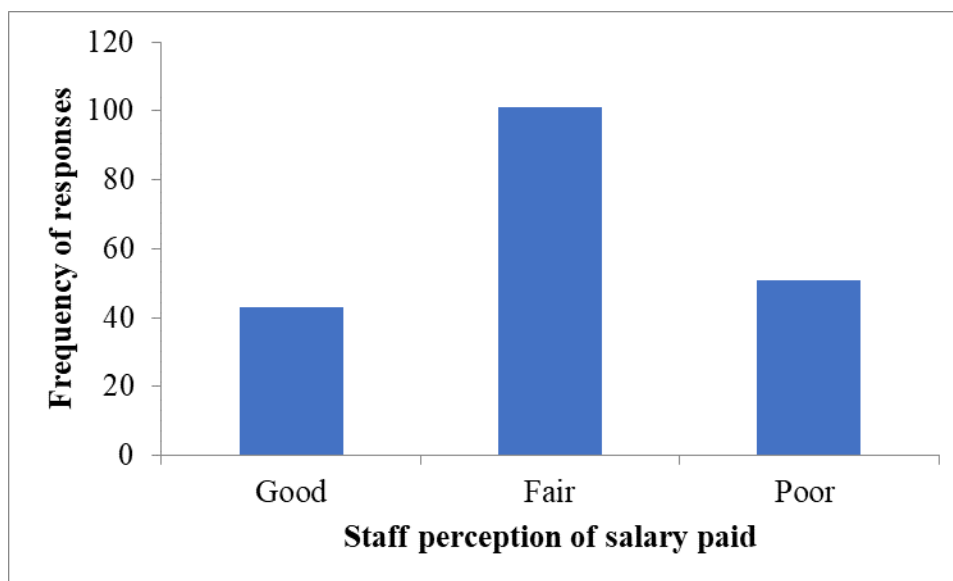
Figure 4. Staff perception of salary paid in the tertiary hospitals

Figure 4 contains data on staff perception of the salary they receive in the tertiary hospitals where they work. It is observed in Figure. 4 that 43(22.05%) of the respondents reported that the salary they receive is good and encouraging. However, 101(51.79%) and 51(26.15%) of the respondents indicated that the salary they receive is fair and poor respectively. The high percentage of respondents who reported that their salary is fair (51.79%) and poor (26.15%) is an indication that most of the staff are not contented with the salary they receive at the tertiary hospitals. This has an implication on their attitude towards work and the ability to contribute significantly to effective and quality care service delivery in the hospitals. This is because a good salary serves as motivation for job satisfaction vis-a-vis the level of commitment towards effective service delivery.

Table 12

Impacts of Diagnostic and Treatment Constraints on Quality of Healthcare Services

Diagnostic and treatment constraints	Impact on quality of health care services (%)				
	Increased wait time	Increased death rates	Duplication of treatment procedures	Delay in treatment	Total
Malfunctioned medical equipment	40 (38.83)	17 (16.50)	21 (20.39)	25 (24.27)	103 (52.82)
Drug unavailability	11 (25.58)	6 (13.95)	8 (18.60)	18 (41.86)	43 (22.05)
Inadequate medical equipment	21 (42.86)	9 (18.37)	5 (10.20)	14 (28.57)	49 (25.13)
Total (%)	72 (36.92)	32 (16.41)	34 (17.44)	57 (29.23)	195 (100)

Table 13 contains data on the impact of diagnostic and treatment constraints on the quality of healthcare services. It is observed in Table 13 that 72 (36.92%) of the respondents reported that malfunctioned medical equipment, drug unavailability, and inadequate medical equipment resulted in increased wait times of patients in the tertiary hospitals. 32 (16.41%) of the respondents reported increased death rates due to diagnostic and treatment constraints. Also, 34 (17.44%) and 57 (29.23%) of the respondents indicated that diagnostic and treatment constraints resulted in duplication of treatment procedures and delay in treatment respectively.

The impacts of diagnostic and treatment constraints on quality of healthcare services in the tertiary hospitals showed that long wait time (36.92%)

and delay in treatment (29.23%) constituted the major negative impacts on the quality of healthcare services delivered in the hospitals. These negative impacts of diagnostic and treatment constraints on healthcare services show that diagnostic and treatment procedures are crucial organizational factors needed to enhance the sound quality of healthcare services in tertiary hospitals. Where constraints are limiting the diagnostic and treatment procedures, the impacts or effects seem to be serious as observed in the study area.

Test of Hypothesis 2

H_0: Diagnostic and treatment constraints in tertiary hospitals of North Central Nigeria does not have a significant association with the quality of care service delivery.

H_1: Diagnostic and treatment constraints in tertiary hospitals of North Central Nigeria has a significant association with the quality of care service delivery

To test hypothesis 2, the data in Table 13 was used. The chi-square statistics was used in SPSS version 21.0 to test the hypothesis. The results of the statistics are contained in Tables 14, 15 and 16. The chi-square statistics were used to ascertain if diagnostic and treatment constraints have a significant association with the quality of healthcare services in tertiary hospitals in North Central Nigeria. Results of the statistics indicated that there is a significant association between diagnostic/treatment constraints and significant negative impacts on quality of healthcare services in tertiary hospitals in North Central

Nigeria as revealed by a probability value (p = 0.01), which is less than 0.05, df

=103, χ^2 = 111.00, p = 0.01 (Table 15).

Table 13

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Diagnostic and treatment constraints Impacts of diagnostic and treatment constraints on quality of healthcare services	195	100.0%	0	0.0%	195	100.0%

Note. Level of significance: 0.05

Table 14

Diagnostic and Treatment Constraints on Quality of Healthcare

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	111.000[a]	103	0.01
Likelihood Ratio	54.093	103	1.00
Linear-by-Linear Association	0.700	1	0.10
N of Valid Cases	195		

Note. [a] 121 cells (82.5%) have expected count of more than 5. The minimum expected count is 0.18. Level of significance: 0.05

Table 15

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	3.041	0.01
	Cramer's V	0.962	0.01
N of Valid Cases		195	

Note. Level of significance: 0.05

The null hypothesis was therefore rejected and the alternative hypothesis accepted that "diagnostic and treatment constraints in tertiary hospitals of North Central Nigeria have a significant association with the quality of care service delivery".

The effect size of diagnostic and treatment constraints on the quality of healthcare services as revealed by the Cramer's V test is 0.96. This presupposed that 96% of the effects observed on the negative impacts of healthcare services as shown in Table 9 are accounted for by diagnostic and treatment constraints. The linear by linear association is 0.7, implying a positive and robust relationship between diagnostic/treatment constraints and negative impacts of healthcare services in tertiary hospitals in North Central Nigeria. Therefore, it is inferred that with reduced diagnostic and treatment constraints in the tertiary hospitals, the quality of healthcare services will be improved with reduced negative impacts.

Ascertaining Any Difference in the Medical Facilities and

Organizational Challenges among Tertiary Health Facilities in North

Central Nigeria

The data on medical facilities and organizational challenges were used to

ascertain if there is a significant association in medical and organizational

challenges among the different tertiary hospitals in North Central Nigeria. The

one-way ANOVA statistics was used in SPSS version 21.0 to ascertain the

variation. The results of the ANOVA statistics are presented in Table 17.

Table 16

ANOVA Table for Medical and Organizational Challenges in the Hospitals

		Sum of Squares	df	Mean Square	F	Sig.
Number of Medical facilities	Between Groups	53.646	2	26.823	0.515	0.607
	Within Groups	886.104	17	52.124		
	Total	939.750	19			
staff level of training	Between Groups	0.021	2	0.011	0.008	0.992
	Within Groups	21.729	17	1.278		
	Total	21.750	19			
staff-patient relationship	Between Groups	0.868	2	0.434	0.826	0.455
	Within Groups	8.932	17	0.525		
	Total	9.800	19			
staff perception of salary paid	Between Groups	0.075	2	0.038	0.072	0.931

		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	8.875	17	0.522		
	Total	8.950	19			
Condition of medical facilities	Between Groups	0.296	2	0.148	0.123	0.885
	Within Groups	20.504	17	1.206		
	Total	20.800	19			
Number of diagnostic machines	Between Groups	0.493	2	0.246	0.417	0.666
	Within Groups	10.057	17	0.592		
	Total	10.550	19			
Number of scanning machines	Between Groups	0.868	2	.434	0.436	0.654
	Within Groups	16.932	17	0.996		
	Total	17.800	19			
Number of radiographic machines	Between Groups	0.821	2	0.411	0.689	0.515
	Within Groups	10.129	17	0.596		
	Total	10.950	19			
Number of bed space	Between Groups	2.536	2	1.268	2.070	0.157
	Within Groups	10.414	17	0.613		
	Total	12.950	19			
Number of diagnostics, treatment and rehabilitation machines	Between Groups	4.296	2	2.148	4.295	0.031
	Within Groups	8.504	17	0.500		
	Total	12.800	19			

Note. Level of significance: 0.05

Table 17 shows the between (healthcare facilities) and within (staff and patient) group variations in the medical and organizational challenges of tertiary health facilities in North Central Nigeria. It is observed that there is no significant association in number of medical facilities in the tertiary hospitals ($p = 0.607$), staff level of training ($p = 0.992$), staff-patient relationship ($p = 0.455$), staff perception of salary paid ($p = 0.931$), condition of medical facilities ($p = 0.885$), number of diagnostic machines ($p = 0.666$), number of scanning machines ($p = 0.654$), number of radiographic machines ($p = 0.515$) and number of bed space ($p = 0.157$), df = 2, 17. However, there is a significant difference in the number of diagnostic, treatment and rehabilitation machines in the tertiary hospitals ($p = 0.031$).

Test of Hypothesis 3

H_0:   There is no significant association in the organizational and medical facility challenges of quality care delivery between tertiary healthcare hospitals in the study area.

H_1:   There is a significant association in the organizational and medical facility challenges of quality care delivery between tertiary healthcare hospitals in the study area.

The hypothesis was tested using the results of the ANOVA statistics contained in Table 17. Since most of the medical and organizational challenges are not significant at 0.05 significance level; it is concluded that the alternative hypothesis be rejected and the null hypothesis not to be rejected, hence "there is

no significant association in organizational and medical facility challenges of quality care delivery at tertiary health care facilities in the study area." This clearly shows that the challenges confronting the tertiary hospitals in North Central Nigeria are similar and needs a holistic approach in solving them to enhance good quality of healthcare delivery.

Patients' Perception of Quality of Healthcare Services

The perception of patients on quality of healthcare services was sourced from 60 patients receiving care at the three selected tertiary hospitals. The results are presented below.

Table 17

Patient's Perception of Quality of Healthcare Services in the Tertiary Hospitals

Tertiary hospital	Patient's perception of the quality of care (%)				Total
	Poor	Fairly good	Good	Excellent	
National Hospital Abuja	3 (15.0)	9 (45.0)	6 (30.0)	2 (10.0)	20 (33.3)
Jos Uni. Teaching Hospital	4 (20.0)	7 (35.0)	8 (40.0)	1 (5.0)	20 (33.3)
Benue State Uni. Teaching Hospital	2 (10.0)	8 (40.0)	7(35.0)	3 (15.0)	20 (33.3)
Total	9 (15.0)	24 (40.0)	21 (35.0)	6 (10.0)	60 (100.0)

Table 18 shows that 9 (15.0%) reported that the quality of healthcare services is poor in the tertiary hospitals in North Central Nigeria. 24 (40.0%) of

respondents reported that the quality of healthcare services is fairly good, while

21 (35.0%) indicated that the quality of healthcare services they receive is good. 6

(10.0%) of the respondents reported that the quality of healthcare services is

excellent. It is observed that a high percentage of respondents said that the

quality of healthcare services is "fairly good" (40.0%) and "good" (35.0%) than

any other perception level. This implies that the quality of healthcare services in

the tertiary health facilities in North Central Nigeria is fairly good. This is an

indication that the quality of healthcare services needs to improve upon for

effective healthcare delivery and improved population health.

Test of Hypothesis 4

H_0: There is no significant association in the patient's perception of the

quality of healthcare services between tertiary healthcare hospitals of

North Central Nigeria.

H_1: There is a significant association in the patient's perception of the

quality of healthcare services between tertiary hospitals of North

Central Nigeria

The data in Table 18 was used to test hypothesis four, using ANOVA

statistics in SPSS version 21.0. The results of the statistics are contained in Table

19.

Table 18

ANOVA

Patient's perception on quality of healthcare services

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.500	2	0.250	0.026	0.974
Within Groups	85.500	9	9.500		
Total	86.000	60			

Note. Level of significance: 0.05

The ANOVA statistics were used to test the hypothesis of whether there is a significant association in the patient's perception of the quality of healthcare services in tertiary health facilities in North Central Nigeria. Results of the statistics show that the p = 0.974, F = 0.026, d =2, df = 2, 9. Since the p-value (0.974) is greater than the 0.05 significance level, the null hypothesis was not rejected and the alternative hypothesis rejected. This implies that there is no significant association in the patient's perception of quality of healthcare services in tertiary hospitals of North Central Nigeria. This shows that tertiary healthcare facilities in North Central Nigeria do not significantly differ in the quality of healthcare services they offer, which is fairly good as reported by the respondents. This quality of healthcare services implies the well-being of patients and death rates in the country.
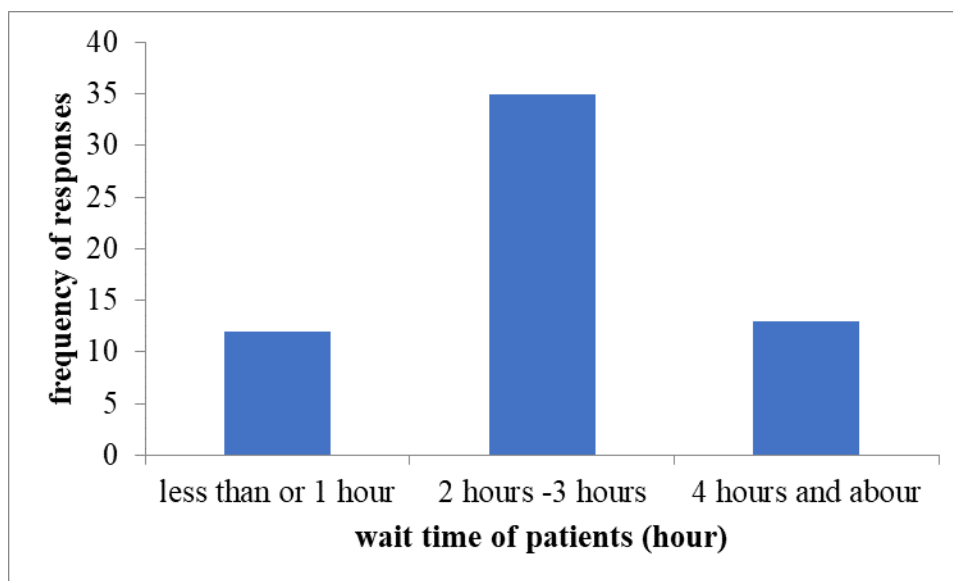
Figure 5. Wait time of patients in the tertiary hospitals in North Central Nigeria

Figure 5 shows that 12 (20.0%) of respondents reported spending less than or one (1) hour each time they visit the hospital for treatment. 35 (58.3%) of respondents indicated that they wait for about 2–3 hours in the hospital before been treated, while 13(21.7%) of respondents reported a wait time of 4 hours and above. The highest percentage of respondents who reported 2-3 hours of wait time (58.3%) indicates that patients in the tertiary hospital waste much time before they receive healthcare services.

Summary and Transition

This chapter enumerated the findings of the research questions. In all, 255 respondents comprising patients and health care workers were interviewed from the three tertiary hospitals included in this study. Sixty (23.53%) of the participants were patients receiving treatment in the sampled tertiary hospitals at the time of this study. Those in the age group 38 – 57 comprised 45.1% of the

respondents Males were 65.9% of the population. Most (71.8%) of the

respondents had a bachelor's degree while more than half (68.6%) had a monthly

income greater than 93,000 naira.

The result showed that the sampled tertiary hospitals in North Central

Nigeria had medical facilities that were inadequate, especially with regards to

diagnostic machines, scanning machines, radiographic machines, and

rehabilitation machines. Although, these facilities were reported to be in fairly

good (58.46%) and good (26.15%) conditions. Results of the chi-square statistics

for Hypothesis 1 revealed that there was a significant association between

medical facilities and quality of healthcare services of tertiary hospitals in North

Central Nigeria (p =0.034), df =169, χ^2 = 176.250, p =0.034. The chi-square test

for hypothesis 2 indicated that there is a significant association between

diagnostic/treatment constraints and significant negative impacts on quality of

healthcare services in tertiary hospitals in North Central Nigeria (p = 0.01), df

=103, χ^2 = 111.00, p = 0.01.

Hypothesis 3 was tested using the analysis of variance to ascertain any

difference in medical facilities and organizational challenge. This showed no

significant association in number of medical facilities in the tertiary hospitals,

staff level of training, staff-patient relationship, staff perception of salary paid,

condition of medical facilities, number of diagnostic machines, number of

scanning machines, number of radiographic machines and number of bed space,

(p > 0.5). However, there was a significant difference in the number of

diagnostics, treatment and rehabilitation machines in the tertiary hospitals (p = 0.031). The results of Hypothesis 4 which also utilized ANOVA showed that there is no significant association in the patient's perception of quality of healthcare services in tertiary hospitals of North Central Nigeria. The interpretations of these results and other findings are discussed in Chapter 5. Chapter 5 also gave a conclusion and made recommendations for further research and the study's implications for positive social change.

Chapter 5: Discussion, Conclusion, and Recommendations

Introduction

The purpose of this study was to examine the challenges of quality healthcare delivery by tertiary healthcare hospitals in the North Central region of Nigeria using a quantitative research method. The purpose of this chapter is to discuss the research findings, conclusion, and recommendations.

Discussion

Results of the study indicated that the tertiary hospitals in North Central Nigeria offered inadequate medical facilities, especially with regards to diagnostic machines, scanning machines, radiographic machines, and rehabilitation machines. The numbers of these machines was grossly insufficient for good quality and prompt healthcare delivery. These findings confirmed those of Eme et al. (2014), who reported, among other things, that facilities for healthcare delivery is low in most tertiary hospitals in Nigeria. As a result, many Nigerians are at risk of dying. Eme et al. (2014) faulted the deceitful electioneering and re-electioneering claims by Nigerian politicians that healthcare facilities would be made available at every nook and cranny of Nigeria upon election into public offices. The inadequacy of medical facilities in tertiary hospitals in North Central Nigeria is attributed to lack of affordability, insufficient funds from the government, and a culture of poor maintenance that results in the breakdown of medical equipment.

The condition of the medical facilities in the tertiary hospitals in North Central Nigeria was observed to be fairly good. Most of the radiology and scanning equipment were in fairly good condition but not working effectively in the tertiary hospitals. Breakdown periods of the equipment were frequent mainly because the hospitals had a poor maintenance plan in place. This finding contradicted those of Nikhil et al. (2016), who reported that the compliance of the radiology department to the regulatory requirements was good, with only slight deviations and errors in a tertiary hospital.

The medical facilities in tertiary hospitals were observed to have negative effects on the quality of healthcare services in the tertiary hospitals by increasing the mortality and morbidity rates, causing poor quality of healthcare services among others. These findings confirmed those of Chaudhary and Kaul (2015) in India, where it was observed that 23% of the medical diagnostic equipment was not adequately used for one reason or the other and the inadequacy and poor conditions of diagnostic machines to some extent negatively affected the quality of care delivered in the hospital. The negative effects of medical facilities on quality of healthcare services in tertiary hospitals in North Central Nigeria are attributed to obsolescence, break-down of the facilities, maintenance delays, and excessive working hours. Also, diagnostic and treatment procedures were found to reduce the quality of healthcare services in tertiary hospitals in the study area through delayed diagnosis and repeated treatment procedures. These organizational factors were considered very important to enhancing good quality

of healthcare services in tertiary hospitals. These findings confirmed those of Xie and Or (2017) in China, where they found that long patient waits had negative on patients' satisfaction with health care. Also, that actual long wait time and delayed treatment procedures were negatively associated with patient satisfaction regarding several aspects of the care they received.

Patients' perception of the quality of healthcare services was reported to be relatively good and a long wait time of 2-3 hours. This implies that the quality of healthcare services in the tertiary health facilities in North Central Nigeria is considered to be inadequate by people that patronize the hospitals for medical care. This finding confirmed that of Osiya et al. (2017) in River State, South-South Nigeria, where it was observed that patients' satisfaction with general practice care delivered at a tertiary hospital was considered to be fairly good and needed to be improved through effective service delivery and reduced wait times.

Conclusion

The challenges of delivering quality healthcare services in tertiary hospitals in North Central Nigeria were observed to a complex combination of factors that impacts negatively on the quality of healthcare delivery, such as delay in treatment, repeated treatment procedures, increased chronic diseases and increased death rates. It is therefore concluded that inadequate and poor conditions of medical facilities, inadequate staff training, fairly good salaries, poor diagnostic and treatment procedures and long wait times of patients were found to be the major challenges confronting the delivery of quality healthcare

services in tertiary health facilities in North Central Nigeria. Also, the patient's perceptions of the quality of healthcare services were found to be fairly good and requiring improvement on the present condition of healthcare in the tertiary hospitals in North Central Nigeria.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. The condition and number of medical facilities were found to be inadequate in the tertiary hospitals, therefore they need to be improved upon by the Federal government of Nigeria and hospital management for effective and quality healthcare service delivery.

2. Staff salary in the tertiary hospital should be improved upon by the Federal government of Nigeria and the hospital management board to enhance a positive work attitude for the staff to enhance quality healthcare service delivery.

3. The Federal government of Nigeria should implement and enforce public health policy on controlled death rates due to poor healthcare service delivery in tertiary hospitals in North Central Nigeria as well as other parts of the country.

4. The tertiary hospitals should train and retrain its staff for effective and quality service delivery in the hospitals.

5. Wait time of patients in the tertiary hospitals for treatment was found to be much. Therefore, for effective and quality service delivery, there should be reduced the wait time of patients in the hospital.

References

Bajpai, V. (2014). The challenges confronting public hospitals in India, their

    origins, and possible solutions. *Advances in Public Health*, *34*(3):23- 27.

    http://dx.doi.org/10.1155/2014/898502

Boussabaine, H., Sliteen, S., & Catarina, O. (2012). The impact of hospital bed

    use on healthcare facilities operational costs: The French

    perspective. *Facilities, 1/2, (30)* :40-55. Retrieved from

    https://www.nivel.nl/sites/default/files/bestanden/1000648.pdf?

Brause, R. S. (2000b). Identifying your dissertation topic and your research

    questions. In *Writing your doctoral dissertation: Invisible rules for

    success* (pp. 37–47). New York, NY: Routledge.

Carney, M. (2011). Influence of organizational culture on quality healthcare

    delivery. *International Journal of Health Care Quality Assurance,

    24*(7): 523-39. Retrieved from

    https://www.ncbi.nlm.nih.gov/pubmed/22204086

Chaudhary, P., & Kaul, P. (2015). Factors affecting utilization of medical

    diagnostic equipment: A study at a tertiary healthcare setup of

    Chandigarh. *CHRISMED Journal of Health and Research, 2*(4): 316-323.

    Retrieved from http://www.journalonweb.com/cjhr/

Chuang, S., & Inder, K. (2016). An effectiveness analysis of healthcare systems

    using a systems theoretic approach. *BMC Health Services Research,* 43-

    67.

Covington, W. G. (2014). *Creativity and general systems theory.* City, State:

    Universal Publishers. Retrieved from http://www.universal-

    publishers.com/book.php?method=ISBN&book=158112872X

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed*

    methods approach (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

De Oliveira, J. F. (2014). The effect of the internet on the patient-doctor

    relationship in a hospital in the city of São Paulo. *Journal of Information*

    System Technology Management, 11(2): 23-32. Retrieved from

    www.jistm.com

Ehiemere, I. E., Nwaneri, A., Iheanacho, P. & Akpati, V. (2017). Helpless

    patients' satisfaction with quality of nursing care in federal tertiary

    hospitals, Enugu, southeast. *International Journal of Nursing and*

    Midwifery, 3(1): 6-13. Retrieved from

    https://academicjournals.org/journal/IJNM

Ekpe, E. E. & Peter, A. I. (2016). Surgical patient's satisfaction with services at a

    tertiary hospital in south-south State of Nigeria. *The Journal of Medical*

    Research, 2(5): 157-162. Retrieved from

    http://www.medicinearticle.com/JMR_201625_08.pdf

El Malky, M. I., El Wahab, S. D., El-Amrosy, S. H. & El Fiky, E. R. (2016).

    Patients' satisfaction about quality of care and aggressive behavior in

    psychiatric hospitals. *International Journal of Nursing Science 6*(2): 25-

    34. doi: 10.5923/j.nursing.20160602.01

Eme, O. I., Uche, O. A. & Uche, I. B. (2014). Building a solid health care system in Nigeria: Challenges and prospects. *Academic Journal of Interdisciplinary Studies, 6(3):* 1-10. doi:10.5901/ajis.2014.v3n6p501

Ezegwui, I. R., Okoye, O.I., Aghaji, A. E., Okoye, O. & Oguego, N. (2014). Patients' satisfaction with eye care services in a Nigerian teaching hospital. *Nigerian journal of clinical practice, 17*(5): 585-588. doi: 10.4103/1119-3077.141423

Flegel, K. (2015). Tertiary hospital must provide general care. *Canadian Medical Association Journal. 187*(4):235. doi:10.1503/cmaj.150056

Fouogue, J. T., Tchounzou, R., Fouelifack, F. Y., Fouedjio, J. H., Sama, J., Sando, D. Z. & Mboudou, E. T. (2017). Evaluation of patients' satisfaction after laparoscopic surgery in a tertiary hospital in Cameroon (Africa). *The Pan African Medical Journal. 28*:216. doi:10.11604/pamj.2017.28.216.11441

Francis, E., Dyks, D., & Kanji, S. (2014). Influence of admission to a tertiary care hospital after a fall on use of potentially inappropriate medications among older patients. *The Canadian Journal of Hospital Pharmacy, 67*(6): 429–435. doi:10.4212/cjhp.v67i6.1405

Gebremedhn, E. G., & Lemma, G. F. (2017). Patient satisfaction with the perioperative surgical services and associated factors at a university referral and teaching hospital: A cross-sectional study. *The Pan African Medical Journal, 27*:176-189. doi: 10.11604/pamj.2017.27.176.10671

Howley, P., & Chuang, S. (2016). Systems theory and improving healthcare.

proceedings of the fourth annual ASEARC conference, University of
 Western Sydney, Paramatta, Australia. Retrieved from
http://ro.uow.edu.aw/asearc/27

Iliyasu, Z., Abubakar, I. S., Abubakar, S., Lawan, U. M., & Gajida, U. A. (2015).
Patients' satisfaction with services obtained from Aminu Kano Teaching
Hospital, Kano, Northern Nigeria. *Nigerian Journal of Clinical Services,
4*(13): 371-378. Retrieved from
https://www.ncbi.nlm.nih.gov/pubmed/21220848

Iloh, G. U., Ofoedu, J. N., Njoku, P. U., Odu, F. U., Ifedigbo, C. V. &
Iwuamanam, K. D. (2016). Evaluation of patients' satisfaction with quality
of care provided at the National Health Insurance Scheme clinic of a
tertiary hospital in south-eastern Nigeria. *Nigerian Journal of Clinical
Practice, 15*(4):469-474. doi:10.4103/1119-3077.104529

Jalongo, M. R. (2007). Working with your committee: A behind-the-scenes look
at sources of conflict. Retrieved from
http://www.abdsurvivalguide.com/archives/apr708.htm#feature.doi.10.1
007/s10643-012-0569-

King, B. J., Gilmore-Bykovskyi, A. L., Roiland, R., Brock, A. Polnaszek, E.,
Bowers, B. J., & Kind, A. J. H. (2013). *The consequences of poor
communication during hospital to skilled nursing facility transitions: A
qualitative study*. doi.10.1007/s10643-012-0569.

Lee, J., Gupta, S., Price, C. & Baranowski, A. P. (2013). Low back and radicular

pain: A pathway for care developed by the British pain society. *British Journal of Anesthesia*, *111*(1): 112-120. doi: 10.1093/bja/aet172

Loughrey, J. P. R., Fitzpatrick, G., Connolly, J., & Donnelly, M. (2002). High dependency care: Impact of lack of facilities for high-risk surgical patients. *Irish Journal of Medical Science, 171*(4)*:*211. doi: https://doi.org/10.1007/BF03170283

McCovery, J., & Matusitz, J. (2014). Assessment of collaboration in United States health care delivery: A perspective from systems theory. *Social Work in Public Health 29*(5):451-462. doi: 10.1080/19371918.2013.865109

Mishra, P.H. & Gupta, S. (2014). Study of patient satisfaction in a surgical unit of a tertiary care teaching hospital. *Journal of Clinical Orthopedics and Trauma, 3*(1):43-47. doi: 10.1016/j.jcot.2012.04.002

Mosadeghrad, A. M. (2014). Factors influencing healthcare service quality. *International Journal of Health Policy and Management, 3*(2):77-89. doi: 10.15171/ijhpm.2014.65

Nikhil, A. M., Vinod, A. K. & Achala, P. B. (2016). A study on utilization of equipment and quality assurance in the radiology department of a tertiary care hospital. *International Journal of Management and Applied Science, 2*(10):31-36. Retrieved from http://ijmas.iraj.in/

Oche, M. O., & Adamu, H. (2013). Determinants of patient waiting time in the

general outpatient department of a tertiary health institution in northwestern Nigeria. *Annals of Medical Health Science Research, 3*(4):588-592. doi: 10.4103/2141-9248.122123

Oladejo, E.I., Umeh, O.L., & Egolum, C.C. (2015). The challenges of healthcare facilities maintenance in tertiary hospitals in southeast Nigeria. *International Journal of Civil Engineering Construction and Estate Management, 2* (3):1-6. Retrieved from http://www.eajournals.org/wp-content/uploads/The-Challenges-of-Healthcare-Facilities-Maintenance-in-Tertiary-Hospitals-in-South-East-Nigeria.pdf

Oladejo, E., Umeh, O., & Ogbuefi, J. (2015). An examination of impact of tertiary healthcare facility design on user needs and satisfaction in southeast Nigeria. *Journal of Environment and Earth Science, 5*(5):35-43. Retrieved from https://www.iiste.org/Journals/index.php/JEES/article/view/20659

Olapojoye, V. (2017). Saving healthcare in Nigeria: A practical PPP approach. *BMJ Quality and Safety,* 23-34. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249694/

Omoleke, I. I., & Taleat, B. A. (2017). *Contemporary issues and challenges of health sector in Nigeria.* http://dx.doi.org/10.4314/rejhs.v5i4.5

Osiya, D. S., Ogaji, D. S., & Onotai, L. (2017). Patients' satisfaction with healthcare: comparing general practice services in a tertiary and primary

healthcare settings. *The Nigerian Health Journal, 17* (1):56-68. Retrieved

from   http://www.tnhjph.com/index.php/tnhj/article/view/268

Oyebade, W. (2015). *Many challenges of healthcare delivery in Lagos*. Retrieved

from https://guardian.ng *doi*.org/10.1155/*2014*/923593.

Perencevich, E. N., Sands, K. E., Cosgrove, S., Ellen, E. G., & Platt, R. (2003).

Health and economic impact of surgical site infections diagnosed after

hospital discharge. *Emerging Infectious Diseases, 9*(2):196–203

Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/12603990

Robson, C. (2015*). Real-world research: A resource for social scientists and

practitioner – researchers*. Malden: Blackwell Publishing

Ross, D. S., & Venkatesh, R. (2015). An empirical study of the factors influencing

quality of healthcare and its effects on patient satisfaction. *International

Journal of Innovative Research in Science, Engineering and Technology,

4*(2): 54-59. doi: 10.15680/ijirset.2015.0402009

Rudestam, K.E., & Newton, R. R. (2007). Surviving your dissertation: A

comprehensive guide to content and process. Retrieved from

http://us.sagepub.com doi/10.1177/0022167815594966

Runnacles, J., Moult, B., & Lachman, P. (2013). Developing future clinical

leaders for quality improvement: Experience from a London Children's

Hospital. *BMJ Quality and Safety,* 25-35. Retrieved from

https://qualitysafety.bmj.com/

Sofaer, S., & Firminger, K. (2015). Patient perceptions of the quality of health

services. *Annual Review of Public Health, 26:*513–59.

doi:10.1146/annurev.publhealth.25.050503.153958

Sun, J., Lin, Q., Zhao, P., Zhang, Q., Xu, K., Chen, H., … Liu, Y. (2017). Reducing

waiting time and raising outpatient satisfaction in a Chinese public tertiary

general hospital-an interrupted time series study. *BioMed Central, Public*

Health, 17: 668-672. doi:10.1186/s12889-017-4667-z.

Thulth, A. S., & Sumaya, S. (2015). Selected organizational factors affecting

performance of professional nurses in northwest bank governmental

hospitals. *Journal of Education and Practice, 6*(7):100-110 Retrieved

from https://www.iiste.org/Journals/index.php/JEP/article/view/20677

Tom, W., & Gillespie, A. (2013). Patient neglect in healthcare institutions: A

systematic review and conceptual model. *BMC Health Services Research,*

23-34. doi: 10.1186/1472-6963-13-156.

Trochim, W. M. K. (2006). *Research Methods Knowledge Base*. Retrieved from

http://www.socialresearchmethods.net/kb/index.php

doi/10.1177/0163278706293402.

Umar, I., Oche M. O., & Umar, A. S. (2017). Patient waiting time in a tertiary

health institution in northern Nigeria. *Journal of Public Health and*

Epidemiology, 3(2): 78-82. doi: 10.4103/2141-9248.122123

Umeano-Enemuoh, J. C., Onwujekwe, O. E., Uzochukwu, B. S. C., & Ogochukwu,

P. E. (2014). Patients' satisfaction and quality of care in a tertiary

institution in southeast Nigeria. *International Research Journal of Basic*

and Clinical Studies, 2(2):14-19. doi:

http:/dx.doi.org/10.14303/irjbcs.2014.014

Walonick, D. S. (2013). *General Systems Theory*. Retrieved from

http://www.statpac.org/walonick/systems-theory.htm

doi/full/10.1080/1389224X.2016.1260485

Wright, E. R. (1997). The impact of organizational factors on mental health

professionals' involvement with families. *Psychiatric Services, 7*(48):921-

927. Retrieved from https://psycnet.apa.org/record/1997-06712-005

Xie, Z, & Or, C. (2017). Associations between waiting times,

service times, and patient satisfaction in an endocrinology outpatient

department: A time study and questionnaire survey. *Inquiry*.

54:46958017739527. doi: 10.1177/0046958017739527

Appendix A: CITI Completion Certificate

CITI PROGRAM

Completion Date 16-Jan-2019
Expiration Date N/A
Record ID 29992690

This is to certify that:

Thomas Torkula

Has completed the following CITI Program course:

Student Researchers (Curriculum Group)
Student Researchers (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

Walden University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wfd2c79c6-f00f-4174-8da6-56759f3f5b4f-29992690

Appendix B: Recruitment Flyer

RECRUITMENT FLYER

Challenges of Quality Care Delivery in Tertiary Health Facilities in North Central Nigeria.

Contact Information

This study on challenges of quality care delivery in tertiary hospitals in North Central Nigeria is being conducted for my dissertation towards the award of PhD in health services of Walden University.

Research Topic: Challenges of Quality Care delivery in North Central Nigeria. A Study of Tertiary Health Facilities.

Purpose: To assess the challenges of quality care delivery in tertiary hospitals in North Central Nigeria.

Location: The study will take place in Abuja, Makurdi and Jos

Eligibility: Participants must be currently working at or, receiving healthcare services in the designated tertiary hospitals in any of the three locations.

Mode of Study: Eligible participants in the study would meet with the researcher at an agreed date, time and venue to complete a questionnaire. This will form part of the eligibility criteria for those who will be willing to participate in the survey.

Incentive: ***No incentive will be provided***

Name: Thomas Torkula
Telephone: +2348175911288 or +2348153402865
Email: tomtorkula@yahoo.com

All interested persons should meet with the researcher in this facility on…….at …..O'clock

Appendix C: Study Questionnaire

Part 1: Staff Healthcare Quality Assessment Questionnaire

22nd February, 2019

Dear Respondent,

I am a postgraduate student in the department of Health Services, Walden University, United States of America. This study is about quality care delivery in tertiary hospitals, in Northern central part of Nigeria. The title of the study is *"Challenges of Quality Care Delivery in Tertiary Health Facilities in North Central Nigeria"* This research is part of the requirements needed for the award of Doctor of Philosophy degree (Ph.D.) in health services. You may wish to provide answers to the questions this questionnaire, only to be used for the purpose of this research. All information elicited will be handled with utmost confidentiality.

Thank you.

Dr. Thomas Torkula

SECTION A

SOCIOECONOMIC CHARACTERISTICS OF RESPONDENTS

Instruction: Please answer the following questions by selecting an option or providing response. All information provided will be used only for the purpose of this research; and shall remain confidential.

1. What is your identity in the hospital?

(a) Doctor   (b) Nurse   (c) Pharmacist (d) paramedical staff (e) Administrative staff

2. What is your age?

(a) 19 years – 37 years   (b) 38 years – 56 years

(c) 57 years - 75 years   (d) 76 years and above

3. What is your gender?

(a) Male   (b)   Female

4. What is your educational level?

(a) No formal education   (b) Primary education   (c) Secondary education   (d) Sub-degree (e) Bachelor's degree (f) Master's degree   (g) Doctorate degree

5. What is your employment status?

(a) Not employed   (b) self-employed (c) part-time employed   (d) Full-time employed

6. What is your monthly income?

(a) Less than or ₦30,000   (b) ₦31,000 – ₦61,000   (c) ₦62,000 – ₦92,000

(d) ₦93,000 – ₦123,000   (e) ₦124,000 and above

SECTION B

IMPACTS OF MEDICAL FACILITIES ON QUALITY OF SERVICE DELIVERY

7. What category of medical facilities is found in your hospital?

(a) Diagnostic machines   (b) Scanning machines   (c) Radiographic machines

(d) Bed facilities (e) others (specify) ....

8. What is the working condition of the diagnostic machines in your hospital?

(a) Good condition (b) fairly good (c) poor condition (d) Very good condition

9. Is the diagnostic machine(s) adequate for quality care service delivery?

(a) Yes   (b) No

10. What is the working condition of the scanning machines in your hospital?

(a) Good condition (b) fairly good (c) poor condition (d) Very good condition

11. Is the scanning machine(s) adequate for quality care service delivery?

(a) Yes   (b) No

 12. What is the working condition of the radiographic machines in your hospital?

(a) Good condition (b) fairly good (c) poor condition (d) Very good condition

13. Is the radiographic machine(s) adequate for quality care service delivery?

(a) Yes   (b) No

14. What quantity of medical facilities is available in the hospital?

(a) Diagnostic machines   (a) 1-5   (b) 6-10 (c) 11-15 (d) 16 and above

(b) Scanning machines   (a) 1-5   (b) 6-10 (c) 11-15 (d) 16 and above

(c) Radiographic machines   (a) 1-5   (b) 6-10 (c) 11-15 (d) 16 and above

(d) Diagnostic, treatment and

Rehabilitation machine   (a) 1-5   (b) 6-10 (c) 11-15 (d) 16 and above

(e) Others (specify)..................   (a) 1-5   (b) 6-10 (c) 11-15 (d) 16 and above

15. What are the impacts of these medical facilities on service delivery?

(a) Effective diagnosis results (b) fairly accurate diagnosis results (c) delay in diagnosis (d) good quality imaginary (e) poor quality imaginary

16. What quantity of bed space is in the hospital?

(a) 10-19 (b) 20-29 (c) 30-39 (d) 40-49 (e) 50 and above

17. Are all the bed in useable condition?

(a) Yes (b) No

SECTION C

IMPACT OF ORGANIZATIONAL FACTORS ON QUALITY OF CARE SERVICES

18. Are you satisfied with your current level of professional training?

(a) Yes   (b) No

19. How can you rate your level of training?

(a) Good (b) moderate (c) fairly good (d) poor

20. Have you been sponsored for a professional training by your hospital?

(a) Yes (b) No

21. If yes how many professional certifications have received from such training?

(a) 1-5   (b) 6-10 (c) 11-15 (d) 16 and above

22. How can you consider the nature of your relationship with patients?

(a) Good   (b) fair   (c) poor

23. Are you satisfied with the diagnostic and treatment procedures in your hospital?

(a) Yes   (b) No

24. If no, what are the problems associated with the diagnosis and treatment procedures?

(a) Increased wait time of patients (b) increased death rates (c) Malfunctioned medical

facilities (d) Drug unavailability (e) duplication of drug and treatment prescriptions (f) Others (specify) ....

25. How can you categorize the salary you receive in the healthcare facility?

(a) Good   (b) Fair (c) Poor

26. Based on your observations, what motivations are needed to enhance staff effectiveness in medical service delivery in your hospital?

(a) Improved salary (b) staff training (c) increased staff strength (d) Others (specify) ....

Part 2: Patient's Healthcare Quality Assessment Questionnaire

22nd February, 2019

Dear Respondent,

I am a postgraduate student in the department of Health Services, Walden University, United States of America. This study is about quality care delivery in tertiary hospitals, in Northern central part of Nigeria. The title of the study is *"Challenges of Quality Care Delivery in Tertiary Health Facilities in North Central Nigeria"* This research is part of the requirements needed for the award of Doctor of Philosophy degree (Ph.D.) in health services. You may wish to provide answers to the questions this questionnaire, only to be used for the purpose of this research. All information elicited will be handled with utmost confidentiality.

Thank you.

Dr. Thomas Torkula

SECTION A

SOCIOECONOMIC CHARACTERISTICS OF RESPONDENTS

Instruction: Please answer the following questions by selecting an option. All information provided will be used only for the purpose of this research; and shall remain confidential.

1. What is your age?

(a) 19 years – 37 years (b) 38 years – 56 years

(c) 57 years - 75 years (d) 76 years and above

2. What is your gender?

(a) Male (b) Female

3. What is your educational level?

(a) No formal education (b) Primary education (c) Secondary education (c) Sub-degree (d) Bachelor's degree (e) Master's degree (f) Doctorate degree

4. What is your employment status?

(a) Not employed (b) self-employed (c) part-time employed (d) Full-time
employed

5. What is your monthly income?

(a) Less than or ₦30,000 (b) ₦31,000 – ₦61,000 (c) ₦62,000 – ₦92,000

(d) ₦93,000 – ₦123,000 (e) ₦124,000 and above

SECTION B

PATIENT'S PERCEPTION ON THE QUALITY OF MEDICAL SERVICES

The four point Likert scale was used. That is, Poor (1), Fairly good (2), Good (3), and Excellent (4).

6. Based on your observation how is the physician-patient relationship in this hospital?

   (a) Poor

   (b) Fairly good

   (c) Good

   (d) Excellent

7. How do you consider the quality of medical services in this hospital?

   (a) Poor

   (b) Fairly good

   (c) Good

   (d) Excellent

8. Each day you visit the hospital how long do you stay to get attended to for

 treatment?

(a) Less than or 1 hour

(b) 2 hours – 3 hours

(c) 4 hours and above