2021

Effects of service quality on patient satisfaction among rural hospitals in Western Kenya: a case of Kory Family Hospitals in the County of Bungoma.

Murumba, Susan Murunga
Strathmore Business School
Strathmore University

EFFECTS OF SERVICE QUALITY ON PATIENT SATISFACTION AMONG RURAL HOSPITALS IN WESTERN KENYA: A CASE OF KORY FAMILY HOSPITALS IN THE COUNTY OF BUNGOMA

SUSAN MURUNGA MURUMBA

MBA 119797

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN BUSINESS ADMINISTRATION AT STRATHMORE UNIVERSITY

STRATHMORE BUSINESS SCHOOL

STRATHMORE UNIVERSITY

NAIROBI, KENYA

NOVEMBER 2021

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

Susan Murunga Murumba

4th November 2021

Approval

This dissertation of Susan Murunga Murumba was reviewed and approved for examination by the following:

Name of Supervisor: **Dr. Nancy Njiraini**

4th November 2021

Strathmore Business School

ABSTRACT

The study examines the effects of service quality on patient satisfaction among rural hospitals in Western Kenya by focusing on Kory Family Hospitals based in the County of Bungoma as the case study. Specifically, the study aims at establishing the effect of tangibility, communication, empathy and turnaround time on patient satisfaction. This study adopted an explanatory design and sampled out 384 patients as respondents spread across the three branches of Kory Family hospital using Stratified Random Sampling technique. Data was collected using structured questionnaires and analyzed using multiple linear regression models. The results showed that tangibility have a positive and statistically significant effect on patient satisfaction with $\beta_2 = 0.172$ and $\rho = 0.01$ while communication has a positive and statistically significant effect on patient satisfaction with $\beta_2 = 0.264$ and $\rho = 0.01$. Similarly, empathy appears to affect patient satisfaction most as it has a coefficient of $\beta_3 = 0.318$ and $\rho = 0.01$ whereas the coefficient of turnaround time on patient satisfaction is $\beta_4 = 0.133$ with$\rho = 0.01$. In conclusion, this study provides adequate and conclusive evidence that service quality in its totality, and in particular; tangibility, communication, empathy and turnaround time all have positive and significant effects on patient satisfaction among rural hospitals in the Western Kenya region. Based on these results, the research recommends various aspects of service quality that should be improved to spur better patient satisfaction such as improvement in physical facilities, staff appearance and skill sets, effective communication, empathetic listening and management of queues; among others. Equally, the study recommends future research work to take a deeper insight of each component of service quality and perhaps consider using different econometric approaches to data analysis.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

I am eternally grateful to my supervisor Dr. Nancy Njiraini whose advice, insights and academic support have contributed a lot towards production of this dissertation. Dr. Njiraini was instrumental all through and gave her guidance at every stage of this work.

I am equally grateful to my fellow students with whom we shared classes for their encouragement and positive criticism that went along way into refining this work. They were very helpful morally and materially. Finally, for the gift of life, knowledge and good health, I am truly thankful to my God.

DEFINITION OF TERMS

Health System - is the organization of people, institutions, and resources that deliver health care services to meet the health needs of target populations.

Patient satisfaction - is conceptualized by scholars and practitioners to be an assessment by the patient of his or her prior experience with the hospital against his or her expectation.

Service quality - is the patients' judgment or impression about a healthcare unit's overall excellence and superiority.

SERVQUAL model - is a multi-dimensional research instrument designed to measure service quality as experienced by customers along five dimensions of service quality. The five dimensions are reliability, responsiveness, assurance, empathy, and tangibles.

Tangibility - is used in this context to mean the 'visible' aspects of a service that the hospital uses to enable and offer a given medical service which would include employees themselves, all sorts of visible medical equipment and tools, finishes and furniture.

Communication - The construct of communication represents the readiness of hospital staff to offer assistance and accord quick service and involves swift exchange of information.

Empathy - is the capacity to understand or feel what somebody else is feeling or going through from the other person's frame of reference or point.

Turnaround time - is the time interval from the time of initiation of a process to the time of completion of the process.

LIST OF ABBREVIATIONS

KNBS – Kenya National Bureau of Statistics

KMPDB – Kenya Medical Practitioners and Dentists Board

CBD – Central Business District

WHO – World Health Organization

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE
INTRODUCTION

1.1 Introduction

This chapter introduces the study by providing a discussion on the background of the study from which the problem statement is presented. The objectives of this study are then presented and later expressed in the form of questions that the study sought to provide answers to. In the end, the chapter presents the significance of the study as well as the scope.

1.2 Background of the Study

The concept of customer satisfaction has in recent times attracted a considerable amount of attention from researchers and practitioners. In the healthcare industry, particularly in the context of a hospital, customer satisfaction is generally referred to as patient satisfaction because hospital customers are majorly patients seeking treatment. In this setting, the term patient satisfaction is often similarly conceptualized by scholars and practitioners to be an assessment by the patient of his or her prior experience with the hospital against his or her expectation (Hirata, 2019).

For a variety of reasons, the concept of patient satisfaction is now deemed as a very important issue among hospitals in both developed and developing countries. One school of thought argues that patient satisfaction is important for formulation of quality improvement strategies because patient satisfaction is the ultimate outcome measure for quality and effectiveness of health services (Bernal et al., 2019; Craig-Schapiro et al., 2018). Another school of thought argues that patient satisfaction is highly and positively associated with patient retention and loyalty (Kumar et al., 2017). Other authors such as Woodruff (1997) posit that patient satisfaction is very important in this era and in the future for attracting new patients because it can be used to attain and foster competitive advantages in the competitive markets. In brief, many researchers tend to agree that

patient satisfaction is critical to developing sustainable and superior financial performance strategies.

While most studies on patient satisfaction have put little emphasis on rural hospitals, anecdotal and empirical evidence on ground indicates a terrible state of affairs. According to Wishner, Solleveld, Rudowitz, Paradise, and Antonisse (2016) rural hospitals register a very high closure rate and the rate of failing hospitals seems to increase every year. In this context, the meaning of the term rural hospital is modified from a definition by the Kenya National Bureau of Statistics (KNBS) to refer to those medical facilities where majority of customers or patients reside in areas with a population size of less than 2,000 people (KNBS, 2019). Apparently, rural hospitals fail because they cannot sustain themselves financially which is a situation precipitated by various factors (Kaufman et al., 2016). The first among them is that the rural hospitals have very low and inconsistent incomes which make it hard to attract and retain high-value medical staff and invest in the much-needed medical equipment. Lack of appropriate staff and equipment also compromises service quality which further discourages patients and diminishes patient retention and loyalty (Moyimane, Matlala, & Kekana, 2017).

To implement strategies that shall improve patient satisfaction, perhaps it is more important to understand elements that control or affect the level of patient satisfaction, especially those factors that an entity would have a substantial control on. By borrowing from the rich literature on consumer satisfaction in other service industries such as tourism, airlines and hotel, it is possible to identify an array of internal factors that would potentially have a substantial effect on patient satisfaction. Specifically, most studies appear to agree that service quality has an important and significant impact on satisfaction (Hapsari, Clemes, & Dean, 2016; R. Hussain, Al Nasser, & Hussain, 2015; Lin, Wu, & Chang, 2011; Segoro, 2013; Thi, Briancon, Empereur, & Guillemin, 2002).

1.2.1 Service Quality and the SERVQUAL Model

In general terms, the word quality is used when making a comparison between expectations and performance. In a healthcare setting, service quality is defined by

Javed, Liu, Mahmoudi, and Nawaz (2019) as the patients' judgment or impression about a healthcare unit's overall excellence and superiority. Essentially, the assessment of service is basically evaluated by employing a service quality methodology known as SERVQUAL. SERVQUAL model is a multi-dimensional research instrument designed by Parasuraman, Zeithaml, and Berry (1985) to measure service quality as experienced by customers along five dimensions of service quality. The five dimensions are reliability, responsiveness, assurance, empathy, and tangibles.

Be that as it may, the discourse on whether SERVQUAL should be modified for each industry or be adopted as a generic framework for every service industry is far from being settled. Authors such as Saleh and Ryan (1991), Butt and de Run (2010) and lately, Sydorov, Salnikova, Savelyev, and Oliinyk (2020) argue against unilateral application by submitting that because SERVQUAL was originally designed for the financial sector, some of its questions would not apply in other sectors. As a generally agreed approach in SERVQUAL studies, Butt and de Run (2010) advise that despite being a generic scale, SERVQUAL requires modification to address a particular sector's needs in line with past research recommendations.

In the healthcare sector, the component of reliability has always presented some challenges. By defining reliability as the ability of a healthcare service provider to perform medical services accurately, impeccably, error free and as promised (Kitapci, Akdogan, & Dortyol, 2014), one wonders whether this is feasible and reasonably possible in a hospital where response to treatment varies from one patient to another and cannot be accurately predicted and possibility of complications is documented. Perhaps this is the reason why Haywood- Farmer (1988) insist that SERVQUAL does not capture the technical nature of healthcare services (Martinović, Pavlić, & Šuman Tolić, 2017). In fact, recent studies in healthcare sector that attempt to measure reliability appear to modify the questions and instead seek to establish whether a service is provided at promised time, whether promised timeframes for a service are kept, whether a service is provided in a rightful manner and whether the same service is provided in the same way consistently (Butt & de Run, 2010). Another attempt by Martinović et al.

(2017) modified the questions and asked about working hours and readiness of employees to give advice on top of performing the service as promised.

Clearly these modifications seek elusive responses and may probably be inapplicable in a rural hospital setting because it's not possible to assure a positive medical outcome, there is no one rightful way of providing a medical service and patients would not know the right way anyway. While at the same time, working hours and readiness of employees should be concepts better covered by empathy and turnaround time; as such, asking them under reliability would lead into double barreled questions. Because of this possible inapplicability of the component of reliability in the healthcare sector and coupled with inconsistences of the instruments used in the past, this study does not include reliability as part of constructs of study.

In addition, responsiveness which is better defined as the willingness to provide prompt service to the patients (Tripathi & Siddiqui, 2018) which is in hospital setting is better christened as turnaround time for easy of understanding following the work of Singh, Pradhan, Ravi, and Dhale (2020) and Cape (2002). At the same time, the dimension of assurance which is defined as the aspect of employees to have a good knowledge and be willing to inspire confidence (Kitapci et al., 2014) can as well be labeled as communication, for the purposes of this study, which is a better way of explaining this dimension in a hospital setting. Therefore, this study has four elements, which are aspects of service quality model of SERVQUAL: empathy, communication, tangibility and turnaround time.

Tangibility is used in this context to mean the 'visible' aspects of a service that the hospital uses to enable and offer a given medical service (Rad, Som, & Zainuddin, 2010) which would include employees themselves, all sorts of visible medical equipment and tools, finishes and furniture. In a rural hospitals, previous studies have shown that acquiring modern facilities is a challenge and at the same time attracting and retaining trained personnel is equally a task (Holmen, Niyokwizerwa, Nyiranzayisaba, Singer, & Safdar, 2017) which leaves one to wonder whether and how such a hospital would be able to have their staff appear neat and the hospital to look modern.

The construct of communication represents the readiness of hospital staff to offer assistance and accord quick service and involves swift exchange of information (Lee & Kim, 2017). Indeed, in a hospital, one would expect that the hospital staffs are able to talk to patients, pass information, respond to the patients' questions and advise the patients as and when needed to. A breakdown in these would mean that patients cannot get the help that they need and hence patients would probably be dissatisfied. However, previous studies have provided often conflicting evidence with researchers such as Kitapci et al. (2014) and Aliman and Mohamad (2016) finding that communication is not very important statistically to satisfaction. It will be important to establish whether communication in a rural hospital would provide vivid evidence in support of a causal link because without effective communication medical disputes and misinformation can result in far reaching consequences.

By defining empathy as the capacity to understand or feel what somebody else is feeling or going through from the other person's frame of reference or point, Wan, Jiang, Zeng, and Wu (2019) make it appear that empathy should be vital towards achieving patient satisfaction. In the pursuit of empathy, one can win over a patient's mutual trust and establish a rapport faster (Wan et al., 2019). Empirical evidence for empathy in a medical or healthcare setting has not been very consistent but tends to point at a strong positive association in certain circumstances (Menendez, Chen, Mudgal, Jupiter, & Ring, 2015).

Lastly, turnaround time as conceptualized by Singh et al. (2020) is the time interval from the time of initiation of a process to the time of completion of the process. Turnaround time is very important in some industries such as banking and air transport but to a person who is sick, one would expect that the main concern should be on getting treatment and getting well rather than on how long it takes to be served. While this could be true, again time might make a difference between life and death in a medical situation which would probably mean that turnaround time might still be important to patients (Cape, 2002). It is also possible that people in rural Africa may not be very apprehensive about time as those in urban areas but if a hospital has short turnaround time perhaps that could be a source of competitive advantage.

Therefore, a study on how tangibility, communication, empathy and turnaround time affect patient satisfaction in a rural based hospital would be a worthwhile endeavor.

1.2.2 Study Area

Because this study needed to understand patient satisfaction among rural hospitals, the researcher selected Western Kenya; and specifically Bungoma County, as a region of interest because this region has been consistently reporting high mortality rates (discussed in section 1.3). The study chose Kory Family Hospitals as representative of rural hospitals in Western Kenya for the following reasons. First, Kory Family Hospitals is a group of three hospital facilities based in Bungoma, Kimilili and Chwele towns of Bungoma County which provides a larger coverage and widely spread sample as compared to choosing only one facility. Second, the facilities of Kory Family Hospitals are based in small towns within the County of Bungoma and therefore over 80 percent of the patients reside in rural areas within Western Kenya. Third, the three branches of Kory Family Hospitals serve about three hundred patients every day which is a very huge number compared to any other single hospital in this county.

Kory Family Hospitals is a group of hospitals dully registered in 2015 to provide medical services within Bungoma County and the neighbouring regions. Presently, Kory Family Hospital is a conglomeration of three branches in Bungoma, Kimilili and Chwele Towns, each separately registered by the Kenya Medical Practitioners and Dentists Board (KMPDB) as level three, four and three respectively. The Bungoma Branch is located within Bungoma Town, along Kanduyi – Mumias Road, opposite Shell Service Station just before the airstrip as one proceeds towards Bungoma Central Business Division (CBD) from Kanduyi. Currently, the branch has 15-bed inpatient capacity and is rated as level-three medical facility. The second branch; Kory Family Hospital – Kimilili opened doors for patients on the 1st of February 2018. It's currently the largest branch with a capacity of 74 beds and equipped to offer outpatient, inpatient, maternity, surgical operations, dental, x-ray, physiotherapy, optical and specialized clinics among other services. Chwele branch is the latest addition. Kory Family Hospital – Chwele

commenced operations on 1st November 2018. It is a level-three facility which is equipped to offer outpatient, X-ray, inpatient, ultrasound and maternity services.

1.3 Problem Statement

Most people would generally agree that a well-functioning healthcare system is a basic; and perhaps one of the most important components of a modern society or country (Lewis, Lewis, Leake, King, & Lindemanne, 2016). According to World Health Organization (WHO), such a system must be able to respond in a balanced manner to the population needs and expectations by, among other things, improving the health status of individuals, families and communities (WHO, 2019).

Regrettably, research has shown that in most rural areas in Africa, the health systems are far from this ideal situation. For instance, a study by Ogunnowo, Olufunlayo, and Sule (2015) in Nigeria showed that patients are generally put on terribly long queues and end up spending massive amount of time in hospital. In Zambia, Topp and Chipukuma (2016) found that medical staff generally disrespect patients and tend to disrepute their fellow practitioners. In Kenya, available statistics collected by the National Council for Population and Development (NCPD) shows that the health system in the rural are in deplorable state with higher caseloads but fewer medical equipment, qualified personnel and inadequate drugs (NCPD, 2019).

With such a poor health system, one would wonder whether patients in the rural parts of Kenya are satisfied with medical services they receive from their hospitals or not. According to Quaschning, Körner, and Wirtz (2013) when patients are satisfied, they tend to cooperate with care givers, adhere to medical instructions, they accept the treatment plan, they pass a positive word of mouth around and eventually come back later to repurchase the services from the hospital. Therefore, patient cooperation, adherence, treatment acceptance, positive word of mouth and repurchase are important indicators of patient satisfaction (Quaschning et al., 2013). Unfortunately, in Western Kenya most indicators of satisfaction appear to suggest a significant level of patient dissatisfaction.

For instance, Afulani et al. (2021) found a significant number of patients among 101 medical facilities in Western Kenya simply refuse to cooperate with nurses and caregivers in maternity wards for various reasons. Apparently, some mothers feel that they are being discriminated against for a variety of reasons while others think that the nurses are rude and talk to them in a disrespectful manner yet some may just not understand the instructions. On adherence to treatment regime, a study of 288 medical outlets in Western Kenya by Watsierah and Ouma (2014) found a high prevalence of non-adherence to dosing and drug regime (at 88 percent). This non-adherence was later found to be associated to service quality factors such as caregiver education levels, health worker instructions and caregiver's knowledge among other factors (Banek, Lalani, Staedke, & Chandramohan, 2014; Talisuna et al., 2017). Similarly, screening and treatment non-acceptance has been reported by several authors in Western Region especially for treatment of malaria (Shuford et al., 2016), vaccination for cholera and malaria (Hill et al., 2016; Sundaram et al., 2015) and schistosomiasis (Odhiambo, Musuva, Odiere, & Mwinzi, 2016) among others. Other researchers such as Tarus, Mangeni, Nyariki, and Simiyu (2014), Vedanthan et al. (2016) as well as Getui, Aluku, and Story (2019) have recorded empirically some evidence showing that patient dissatisfaction is rampant in Western Kenya.

By looking at above research evidence on indicators of patient satisfaction together with empirical evidence directly reporting on patient dissatisfaction, it is possible that hospitals in the Western Kenya region could be having a challenge with patient satisfaction. This leaves one begging question as to how such dissatisfaction can be reduced. Perhaps a hospital would improve its patients' satisfaction by improving the quality of its services. Indeed, going by available theoretical and empirical evidence, patient satisfaction can be improved by a hospital focusing on various aspects of service quality. Accordingly, when service quality is improved, patient satisfaction levels are likely to be more favourable which would be expected to translate into more patients and better financial performance (Fox & Storms, 1981; Kitapci et al., 2014). Examples of service quality aspects that can improve patient satisfaction include tangibility (Kitapci et al., 2014), empathy (Menendez, Chen, Mudgal, Jupiter, & Ring, 2015),

communication (Lee & Kim, 2017) and turnaround time (Bleustein et al., 2014; Ogunnowo et al., 2015).

Therefore, this study aims at analyzing how the four aspects of service quality would affect patient satisfaction levels among hospitals in Western Kenya. Kory Family Hospitals are incidentally used as the case study because available evidence based on its growth rate suggest a model hospital with better management and patient satisfaction rates compared to similar facilities in the region.

1.4 Research Objectives

The general objective of this study is to examine how tangibility, communication, empathy and turnaround time affect patient satisfaction in rural hospitals in Western Kenya by using the case of Kory Family Hospitals in the County of Bungoma.

The specific objectives are:

1) To establish effect of tangibility on patient satisfaction among rural hospitals in Western Kenya.
2) To establish effect of communication on patient satisfaction among rural hospitals in Western Kenya.
3) To establish effect of empathy on patient satisfaction among rural hospitals in Western Kenya.
4) To establish effect of turnaround time on patient satisfaction among rural hospitals in Western Kenya.

1.5 Research Questions

1) What is the effect of tangibility on patient satisfaction among rural hospitals in Western Kenya?
2) What is the effect of communication on patient satisfaction among rural hospitals in Western Kenya?
3) What is the effect of empathy on patient satisfaction among rural hospitals in Western Kenya?

4) What is the effect of turnaround time on patient satisfaction among rural hospitals in Western Kenya?

1.6 Scope of the Study

For the purposes of understanding patient satisfaction among rural hospitals, the study shall focus on the three branches of Kory Family Hospitals as representative of rural hospitals in Western Kenya for the following reasons. These hospitals are located Bungoma town, Chwele town and Kimilili town within Bungoma County. It is believed that the three branches serve about twenty-five percent of the market which makes them the most preferred facilities in this county. Kory Family Hospitals have established themselves as icons of excellence in patient satisfaction in the region which has resulted into high numbers of patients and high growth rates of the branch network in the last three years.

1.7 Significance of the Study

This study aimed at providing a deeper understanding of specific aspects of service quality that are likely to affect patient satisfaction among healthcare providers in Western Kenya. It provides evidence that can be utilized by hospital management and generally, medical service providers on how to improve patient satisfaction. By understanding the importance of tangibility, communication, empathy and turnaround time, managers shall have adequate evidence to champion for various activities that are likely to eventually improve patient satisfaction.

The evidence on service quality and patient satisfaction is equally important to the government in the formulation of policies and guidelines to ensure that patients in the rural areas have access to quality and appropriate medical care. This not only ensure quality services but also save lives as lack of appropriate medical assistance or services often lead into death of the patients. For instance, to avoid neonatal sepsis, the government can come out with a referral facility in all sub-counties for accessing services such as blood culture. Alternatively, a referral facility with intensive care capacity for patients in need of specialized critical care or formation of a pool of

appropriately qualified medical experts to support lower level facilities in treatment of complicated cases.

The findings of this study is also useful to researchers and scholars in the field of marketing and in the areas of public health and medical studies whose areas of study involves a look at performance of hospitals especially those in resource-constrained regions such as the rural hospitals. Research in this area is minimal especially from Africa with most attention being put on big and established hospitals in urban areas or in developed countries in the western world. Evidence on challenges facing hospital in rural areas, evidence on how each component of service quality studied here would be very informative for future studies and for areas in these fields that would require more attention or empirical work.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter discusses the theoretical background that underpins this study by exploring propositions of various relevant theorists and authors. It follows with a review of empirical evidence on patient satisfaction and various components of service quality. At the end, this chapter presents gaps that currently exist on the subject of patient satisfaction.

2.2 The concept of Patient Satisfaction

The concept of satisfaction is among the earliest and perhaps most researched concept in the business world and social science as whole. In marketing literature, however, the main focus has mainly been on customer satisfaction because satisfying customers is considered one of the most essential determinants of company performance, competitiveness and profitability (Davras & Caber, 2019). According to Hirata (2019), customer satisfaction is defined as the psychological reaction of the customer with respect to his or her prior experience with the comparison between expected and perceived performance. In health sector, customer satisfaction is basically referred to us patient satisfaction because the main customer is a patient.

Patient satisfaction has become an essential concern for corporate leaders, and a strategic preoccupation for many in hospital management because recent evidence has shown that when a hospital has satisfied patients, it is likely to have more loyal patients (Kumar et al., 2017), strengthen its competitiveness (Subramanian, Gunasekaran, Yu, Cheng, & Ning, 2014), attract new patients (Wangenheim & Bayón, 2007) and record superior financial performances (Dominic, Goh, Wong, & Chen, 2010; Zhou, Brown, & Dev, 2009). When all is said and done, before finding ways of improving patient satisfaction, it is important for a firm to first understand how patients get either satisfied or dissatisfied. Below is a review of significant theories that attempt to explain this.

2.2.1 Patient Satisfaction and SERVQUAL THEOREM

In early 1980s, most literature on patient satisfaction tried to explain why some patients are satisfied by healthcare services they receive while some are not. One important proposition was put forward Fox and Storms (1981) who presented that there are two factors that supersede satisfaction: orientation towards care and conditions of care (Fox & Storms, 1981). Accordingly, patient satisfaction or dissatisfaction is a result of comparing a patient's orientations and the conditions of medical service providers.

Essentially, a patient's orientation towards care implies all that the patient believes or understands as what he or she is ailing from and what should be the right way to manage or treat it. In other words, orientations towards care is nothing but a patient's expectations, as such, a patient's expectations about their hospital encounters shall inevitably be different from one patient to another because of differences in ailments, prior experiences, socio-demographic factors (age, education, exposure) and socially patterned responses to illness. Indeed, in a recent study by Banek et al. (2014) a strong association was found between adherence; which is an aspect of patient satisfaction, and patient's age, knowledge as well as drug preferences, These are indeed factors that mold what Fox and Storm referred as patient's orientation towards care. In other words, the difference in orientation towards care is mainly caused by what Fox and Storm (1981) called the broader social and cultural systems in which individuals exist.

On the other hand, the medical services providers such as hospitals and clinics are also individual organizations; which are also bound to be different in the way they provide care or treatment from one another. Fox and Storm called this the conditions of care, which would include their theoretical methods of providing treatment (i.e. metaphysics, chiropractic, allopathic. etc.), situation of care (i.e. location. speed, cost, etc.) and outcomes of care (i.e. cure. timing. etc.). Therefore, different care providers would understand a patient's ailment differently and even when they understand it similarly, they might still provide treatment or care in a different way. Put differently, the conditions of care is what the patient eventually goes through; or rather, the patient's experience.

According to Fox and Storm, for there to be satisfaction, the patient's orientation towards care must be similar the conditions of care. Basically, when a patient's expectations are matching with what he or she eventually experiences, then at the end they shall be satisfied with the encounter. Alternatively, a patient shall be dissatisfied where his or her orientations towards care are significantly different from the conditions of care. When they argued that satisfaction shall only prevail when a patient's conditions of care are in tandem with his or her orientations toward care, they essentially declared that dissatisfaction is a product of a gap between expectations and experience.

In the pursuit of patient satisfaction, the medical service provider must therefore ensure that medical services are of the right quality that meets the patient's expectations. While quality of a physical product can easily be evaluated by measuring the tangible cues such as colour, hardness, texture and labels, judging quality of a service has always presented a challenge. According to Parasuraman et al. (1985) service quality is about a comparison between expectations and performance. Essentially, delivering of a quality service is an exercise of conforming to the customer's expectations in a consistent manner. They supported the notion that quality of a service must include the quality of the service itself (technical quality) and the manner in which such service is delivered (functional quality) (see Grönroos (1982) for original augments on this).

The implication of these arguments is that service quality is the key towards patient satisfaction in a healthcare scenario. Essentially, a hospital is likely to have satisfied patients if it provides a service that its patients would consider as a quality service. In the words of Anantharanthan Parasuraman et al. (1985) there exists a set of discrepancies or gaps between how service quality is perceived by the firm and what customers actually want. However, they advised that the most important thing to a firm would be to understand how the customers would evaluate the quality of a service (Zeithaml, Berry, & Anantharanthan, 1988). Anantharanthan Parasuraman et al. (1985) were able to come out with ten criterias that customers use to evaluate quality of a service. They called this criteria the service quality determinants which are simply refered to as SERVQUAL scale. These determinants were later reduced to five; namely, reliability, responsiveness, assurance, empathy, and tangibles. SERVQUAL was initially designed for the

assessment of services within the financial sector, and consists of a 22-item, seven-point Likert Scale.

Reliability of a service is the ability of a service provider to perform the service as promised impeccably and accurately. According to Parasuraman et al. (1985), reliability implies that the firm keeps its promises on things such as accuracy of billing, maintenance of correct records and providing the service at the promised time. On the other hand, they defined the dimension of responsiveness in a very simple way as being about willingness of employees to provide the service and being prompt in offering the service by using as little time as possible. In addition to these two dimensions, they included the dimension of assurance which they defined as the ability of the employees to convey trust and confidence which can be attained by being knowledgeable and having courtesy. This is closely related to the determinant of empathy which is also concerned about interactions between employees and the customers. Essentially, empathy is the ability of the employees to be caring and provide individualized care. Lastly, the dimension of tangibles is about appearance of physical facilities, equipment, personnel and tools that are required to provide the service.

2.2.2 Implication of SERVQUAL theory on Patient Satisfaction

The theory of SERVQUAL emanates from the notion of a gap between expectations and experience. Ultimately, a firm should ensure that what they provide conforms as close as possible to the expectations of the customer. In a service industry, this implies providing a service that technically and functionally meets the customer's expectations. This is basically a provision of quality service since quality is nothing but an exercise of conformity. In a healthcare sector, this implies that a medical service provider can achieve satisfied patients by providing quality services.

However, to be able to provide quality medical services, a provider must understand the expectations of its patients. According to Zeithaml et al. (1988), this is possible by focusing on certain aspects or dimensions of service quality, especially those dimensions that the patients are likely to base their quality evaluations on. This is where the SERVQUAL scale comes in. Basically, a medical service provider should

focus on delivering a reliable, responsive and assured service in an empathetic manner and using certain medical service tangibles. Therefore, a quality medical service should have the characteristics of being reliable, assurance, responsive, empathy and tangible.

Scholars and other researcher have over the years demostrated how these dimensions can impact patient satisfaction. below is a discussion of some of this empirical evidence and how such studies have been implemented in different parts of the world.

2.3 Empirical Review

Therefore, SERVQUAL scale is based on the GAP model (Parasuraman et al., 1985) where service quality is measured by identifying the gaps between customers' expectations of the service to be rendered and their perceptions of the actual performance of the service. Several studies have been done around these dimensions against satisfaction in various industries and some authors have managed to analyze these factors in a hospital setting. The results have been astounding in some cases while totally unexpected in terms of theoretical expectations.

2.3.1 Tangibility and Patient Satisfaction

In a hospital setting, Kitapci et al. (2014) measured tangibility as: neat appearance of employees, visually appealing facilities, neat appearance of polyclinic service, professional appearance and modern equipment. The gap theory above suggests that improvement in tangibility of a hospital is likely to lead to higher patient satisfaction. Indeed, this assertion has been held by and tested by several researchers.

One such study to test this hypothesis in a hospital environment was done by Panda and Das (2014) by utilizing the SERVQUAL model from the GAP analysis which was further advanced by the Structured Equation Modeling (SEM). The SEM comes with important tools or technique for route path analysis, which helps in studying and measuring the moderating and mediating effect of each component of the model on each other, thus widening the scope of the study. For the path analysis, the items selected for measuring tangibility include physical facilities, tools and equipment, appearance of

personnel, physical presentation, and other customers availing services. After showing that tangibility in its totality has a significant effect on satisfaction, it went further and showed that variables like physical facilities, appearance and physical presentation are significant, whereas both tools and equipment and other customer usage have insignificant explanation on tangibility of services.

Other studies such as one done in Malaysia by Nordin, Yusuf, and Zakaria (2017) also concurred that tangibility generally has significant effect on patient satisfaction. Such results are similarly shared by Aftab and Razzaq (2016) who reported that dimensions of service quality including tangibility were important criteria for patient satisfaction. While the above studies show a consistent trend of coming out with evidence of significant association between tangibility and patient satisfaction, another group of empiricist appear to obtain very inconclusive evidence. For instance, research done in Pakistan by Javed and Ilyas (2018), revealed that tangibility is not significantly related to patient satisfaction. A. Hussain, Sial, et al. (2019) also found no significant relation between tangibility and patient satisfaction.

It is not clear whether above studies were done in an urban or rural hospital. In addition, given the conflicting and inconclusive results, it is clear that available studies provide very little evidence on whether tangibility in a rural hospital shall influence patient satisfaction.

2.3.2 Assurance: Communication and Patient Satisfaction

Second attribute of a quality medical service is assurance. Assurance in medical service has all to do with how employees and patients communicate to each other. The patient should feel assured that they are in safe hands and person taking care of them understood their ailment and is well knowledgeable about the ailment. In the word of Burgener (2020) enhancing effective communication in health care organizations increases patient safety and patient satisfaction. In another study to show the importance of patient-centered communication towards patient satisfaction, Borghi et al. (2019) recorded eighty five patient – doctor visits and established high levels of satisfaction with the visit and identified the information provided in the communication as one of the main reason

of satisfaction. in other places, patients cite the therapeutic communication as the main reason for their satisfaction (NegiS & Singh, 2017).

Such evidence has equally been reported by W. Wang, Maitland, Nicholas, and Haggerty (2019) who reported that communication; conceptualized as clear explanation by the physician, was found to be positively associated with patient satisfaction. similarly, Burgener (2020) who noted that effective communication has a positive relationship with patient satisfaction following their research in six private hospitals in Islamabad, Pakistan. Many other empiricists have documented this positive correlation such as Biglu, Nateq, Ghojazadeh, and Asgharzadeh (2017) and Ward (2018).

However, other previous studies have provided conflicting evidence with researchers such as Kitapci et al. (2014) and Aliman and Mohamad (2016) finding that communication is not very important statistically to satisfaction. In other words, they fail to establish conclusive evidence of positive association similar to what other researchers appear to establish.

2.3.3 Empathy and Patient Satisfaction

It is normally argued that empathy aids effective communication between hospital staff and patients, thereby reducing medical conflict or disputes. According to Wan, Jiang, Zeng, and Wu (2019) empathy can as well be defined as the capacity to understand or feel what somebody else is feeling or going through from the other person's frame of reference or point.

Empirical evidence for empathy in a medical or healthcare setting has produced conflicting results and sometimes confusing. In one such study focusing on physician empathy on hand surgical operation patient satisfaction overwhelming showed evidence of positive association. In this study, the researcher found that from the patients' point of view, physician empathy is associated strongly with the degree of overall satisfaction with the medical service provider (Menendez et al., 2015). When the researcher went further and controlled for confounding effects, the correlation between empathy and

patient satisfaction, become even stronger and more independent, accounting for 65% of the variation in satisfaction scores.

A prospective observation study undertaken H. Wang et al. (2018) in a hospital whereby 1,308 physician-patient interactions were assessed, it was concluded that empathy has a positive relationship with patient satisfaction. Similar results are reported by studies performed by empiricists such as Ye et al. (2019), Tucker and Adams (2001), Rad, Som, and Zainuddin (2010) and Zarei, Arab, Froushani, Rashidian, and Tabatabaei (2012) among others.

On other hand, a study such as one by Meesala and Paul (2018) is an example of those studies that do not find any significant evidence to support empathy in healthcare setting. Meesala and Paul (2018) used data from the consumers who received services from 40 different private hospitals in Hyderabad, India. They then employed structural equation modeling using path analysis to calculate path coefficients, direct and indirect effects of the empathy among other service quality variables on patient's satisfaction. They found that when patients are cared upon instructions of the physician, empathy matter little. Another interesting twist in their result was on gender. Apparently, satisfaction with service quality also varied between male and female patients.

For rural hospitals, it is possible that patients know and could still be related with the caregiver in one way or another since there could be a single hospital serving so many villages. In such scenario, it is not very clear as to whether empathy really matter as the caregiver and patient would form a rapport easily on one hand and on the other the patient may not be comfortable to be open to the caregiver for reasons emanating from their encounters beyond the hospital.

2.3.4 Responsiveness: Turnaround Time and Patient Satisfaction

The SERVQUAL theory suggests that a quality medical service must be responsive such that employees must act urgently and quickly to the patients' needs in a prompt manner without wasting time. Time is of essence in a medical facility because time wastage can result into loss of life. This is the reason why turnaround time for medical services has

been a strong source of competitive advantage among hospitals (Cape, 2002). In a study by Chandra, Ward, and Mohammadnezhad (2019) of 410 participants in an outpatient facility in Fiji, they noted that patient satisfaction can greately be improved when management focuses strategizing ways to improve waiting time. This is also the conclusions in the studies by A. Hussain, Asif, Jameel, and Hwang (2019), Rizany, Setiawan, and Musafaah (2021) and Xie and Or (2017)

However, most of the studies on turnaround time are set in developed countries and focus on hospitals which cannot be regarded as distinctively rural or urban. One such study was done by Bleustein et al. (2014) where they examined the effect of waiting time on patient satisfaction , the staff's ability and quality of care. A massive amount data was collected from a sample of 11,352 respondents from whom it was established that longer waiting times are undesirably correlated with clinical provider scores of patient satisfactions. Basically, results indicated that every aspect of patient experience - particularly confidence in the care provider and perceived quality of care- correlated negatively with longer waiting times. In fact, ambulatory patient experience was found to be highly and significantly affected by time spent waiting for provider care. Not only are metrics regarding the probability to endorse and the overall satisfaction with the experience negatively influenced by longer turnaround times, but increased waiting times also appear to influence perceptions of information, instructions, and the overall treatment provided by physicians and other caregivers.

Another similar study carried out in Peru by Alarcon-Ruiz, Heredia, and Taype-Rondan (2019), undertook cross-sectional secondary data analysis of the National Survey on User Satisfaction of Health Services. The findings suggested that waiting time and consultation time are positively related with overall patient satisfaction. Alarcon-Ruiz et al. (2019) also concluded that there was a significant relationship between waiting time and overall patient satisfaction. A study conducted in a major teaching hospital in China by Xie and Or (2017) also posted similar findings.

In the rural setting in Western Kenya, people like meeting their friends and new people, a feature that has made them be known as more a peace-loving people in Kenya. Given

this hospitable nature, it is not clear whether spending an extra one hour in a hospital while looking for treatment is an issue.

2.3.5 Reliability and Patient Satisfaction

First, it should be reliable such that patients should be able to get the services a facility promises to offer. For instance, if a hospital advertises that it offer ceaserian section, it must ensure that when patients come for this service, they should be able to get the right people and equipment that shall enable this service in an accurate and dependable manner. In addition, reliability requires that the hospital provides the treatment at a certain or within the promised timeframe. However, a hospital cannot promise to treat a specific ailment and ensure this is done within a promised time. While this is an aspect of reliability, it becomes a challenge in healthcare sector. The truth is that hospitals deal with matters that are more of medical emergencies and complications whose outcomes can be very much unpredictable. Take for instance two people suffering from Malaria, even when they are given the same treatment, they may heal differently and worse still one may be unresponsive to the treatment while another one may experience complications. Therefore, the dimension of reliability must be applied with caution in a healthcare setting.

For the few studies that have attempted to measure reliability of medical services, the conceptualization is in most cases digressed from the original conceptualization by Parasuraman et al. (1985). For example, Al-Damen (2017) defines reliability as the ability to perform the promised service dependably and accurately but goes ahead to ask question on patient trust, confidence and time management which are aspects of the other dimensions.

Table 2.1: Summary of Findings and Operationalization of constructs

Construct	**Operational Definition**	**Empirical Findings**
Patient Satisfaction	Patient satisfaction is defined as an assessment by the patient of his or her	– The SERVQUAL theory suggest that a patients satisfaction or dissatisfaction depends on the balance between

	prior experience with the hospital against his or her expectation (Hirata, 2019)	orientation toward care (expectations) and conditions of care (actual experience) (Fox & Storms, 1981). – When experience is in tandem with what they expected, such person is likely to be contented with the care received, and the opposite is also true. – The theory implies that: o Patient Satisfaction or lack of it is a personal and unique assessment o Because of uniqueness of every patient, a good measure of patient satisfaction should give a unique score for every patient. o Patient satisfaction is a complex and multidimensional evaluation of the hospital.
SERVQUAL	SERVQUAL model is a multi-dimensional research instrument designed by Parasuraman et al. (1985) to measure service quality as experienced by customers along five dimensions of service quality. The five dimensions are reliability, responsiveness, assurance, empathy, and tangibles.	– The American School defines service quality as a difference between what clients expect and what they think of their experience of the service hence termed the Gap Model – Service quality is the gap between customers' expectations of the service and their perceptions of the actual performance.
Empathy	Empathy is the capacity to understand or feel what somebody else is feeling or going through from the other person's frame of reference or point (Wan, Jiang, Zeng, and Wu; 2019)	– Empiricists such as Ye et al. (2019), Tucker and Adams (2001), Rad et al. (2010) and Zarei et al. (2012) found that empathy was positively correlated with patient satisfaction – Meesala and Paul (2018) is an example of those studies that do not find any significant evidence to support empathy in healthcare setting
Tangibility	Tangibility is used in this context to mean the 'visible' aspects of a service that the hospital uses to enable and offer a given medical service (Rad, Som, & Zainuddin, 2010) which would include employees themselves, all sorts of	– Has significant effect with patient satisfaction (Nordin et al., 2017) – Tangibility is an important for patient satisfaction Aftab and Razzaq (2016) – Study in other places shows very inconclusive evidence. Tangibility is not significantly related to patient satisfaction (Javed & Ilyas,

	visible medical equipment and tools, finishes and furniture.	2018) and (A. Hussain, Sial, et al., 2019)
Responsiveness	Responsiveness is separately decomposed into communication and turnaround time following the works of Lee and Kim (2017), Kitapci et al. (2014) and Aliman and Mohamad (2016)	– The authors posit that in a hospital setting responsiveness involves listening carefully and passing clear information to patient; that is, having an effective communication. – Cape (2002) demonstrated that out of effective communication, the patients would expect swift responses and fastened medical assistance because in a hospital timely service may be a matter of life or death. – For these reasons, responsiveness is separated into two constructs of communication and turnaround because it is more realistic and specific in a hospital setting to look at these constructs separately rather than generalizing them as a single construct of responsiveness.
Communication	Communication represents the readiness of hospital staff to offer assistance, comprehensible explanations, accord quick service and involves swift communication (Lee and Kim; 2017)	– Found to be positively associated with patient satisfaction (W. Wang et al., 2019) – Burgener (2020) noted that effective communication has a positive relationship with patient satisfaction also Biglu et al. (2017) and Ward (2018) – But Kitapci et al. (2014) and Aliman and Mohamad (2016) found that communication is not very important statistically to satisfaction
Turnaround time	Turnaround time as conceptualized by Singh et al. (2020) is the time interval from the time of initiation of a process to the time of completion of the process.	– Bleustein et al. (2014) found that every aspect of patient experience - particularly confidence in the care provider and perceived quality of care- correlated negatively with longer waiting times. – But Alarcon-Ruiz et al. (2019) found that waiting time and consultation time are positively related with overall patient satisfaction – A study conducted in a major teaching hospital in China by Xie

		and Or (2017) also posted conflicting findings.

2.4 Research Gap

Literature review of the concept of patient satisfaction above has shown that though patient satisfaction is part of customer satisfaction which is an already established field of research attracting many studies, patient satisfaction is still in its infancy. According to SERVQUAL theory, anything that can boost quality of service is likely to affect patient satisfaction. True to this, there appears established body empirical evidence from most studies that appear to agree in most cases that service quality plays a significant role on patient satisfaction.

For hospitals that want to attract new patients, retain existing loyal patients and hence have sustainable superior financial performance, improving patient satisfaction would be a matter of priority. In particular, rural hospitals in Western Kenya would be better of implementing practices that improve patient satisfaction. Available documentary evidence shows that rural hospitals in this region are small, have very little investment towards attracting and retaining appropriate staff, patients receive very poor services, and a significant number of patients are generally dissatisfied. By increasing service quality, theory suggests that the level of patient satisfaction shall improve.

However, empirical evidence on how various aspects of service quality are associated with patient satisfaction point at a strong relationship. However, in some cases the result is inconclusive, rejects the theory or just inadequate. Furthermore, most of these pieces of evidence are from studies set in developed countries or certainly not in a rural setting hence the need for new evidence. The divergent results could be as a result of poor instruments. For instance, studies on tangibility seem to report unexpected and sometimes reverse findings when a different data analysis technique is used (Shirazi, Kia, & Ghasemi, 2020).

According to econometric and statistical theory such unstable results could be caused by small samples or outliers (Das, 2019). Similarly, studies on communication and empathy

have provided totally opposite results - which is attributed to how the construct is defined and measured (Walsh, O'Neill, Hannigan, & Harmon, 2019). In this regard, most measures use standard questions, which in the ideal setting, should be modified to fit the context of the research (Das, 2019). On turnaround time, very little has been done and available studies are largely surveys with limited empirical analysis.

In summary, the four research questions are yet to be addressed adequately by previous empirical studies. As discussed, it is important that constructs are correctly measured in line with a hospital or healthcare context and sample size increased so as data is adequate and admissible into a plausible data analysis model. In addition to these, there seem to be very little studies on African context. Most studies are either in developed countries in the west or in developing Asian countries.

The African context is important because matters of healthcare are to some degree, peculiar to each country. For example, in developed countries, healthcare is often free and government funded hence there would be less competitive forces and desire for patient satisfaction might be low. While in the Asian countries, huge populations in the Asian countries would imply a huge market hence the competitive landscape may not be similar to Africa. Even in Africa, there is still inter-country variation because of different cultures and government priorities.

Table 2.2: Summary of Research Gaps

Construct	**Research Gaps**
Tangibility and Patient Satisfaction	– Studies on tangibility seem to report unexpected and conflicting results – Small samples are used – Little has been done in an African setting
Communication and Patient Satisfaction	– Studies on communication are inconsistent with theory and expectation – Definition in a hospital setting is unique hence need a new research
Empathy and Patient Satisfaction	– Conflicting results reported from different countries – Little attention on hospitals in rural areas

Turnaround time and Patient Satisfaction	– Very little has been done and available studies are largely surveys with limited empirical analysis.

2.5 Conceptual Framework

Based on the literature reviewed above, the thinking of this study is that improvement of service quality would lead into superior patient satisfaction and given that service quality is conceptualized as made of tangibility of service, communication, empathy and turnaround time, changes in these four components of service quality are likely to cause changes in patient satisfaction. As depicted in the conceptual framework below, each component of service quality forms a measurable construct of service quality that is accordingly decomposed.

INDEPENDENT VARIABLES DEPENDENT VARIABLE

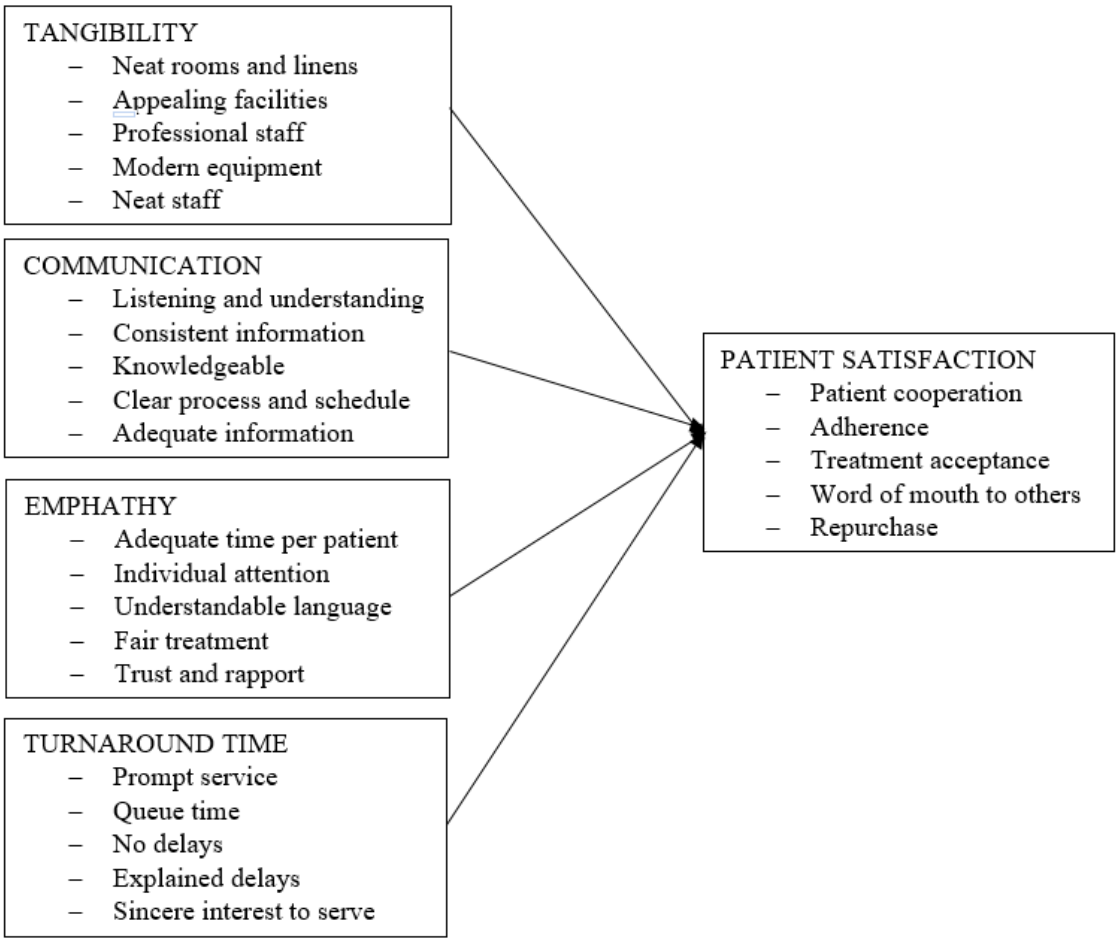

Figure 2.1: Conceptual Framework

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the approaches that were utilized in carrying out the research. It starts by the type of research design that was adopted for the study, the method by which data was collected and the instruments the researcher employed in order to collect the data, how the instruments were designed and executed and how collected data was analyzed in order to address the questions of this research project as presented in the first chapter.

3.2 Research Design

The type of research approach embraced for this study can be described in general terms as a quantitative research which adopted an explanatory research design applied on a case study. This research was categorized as a quantitative research because it attempted to explain the phenomena of patient satisfaction, tangibility, communication, empathy and turnaround time using numerical data which was subjected to empirical analysis using mathematically based methods, especially statistics and econometrics (Yilmaz, 2013). In other words, the study involved systematic and empirical investigation of the above constructs through statistics and mathematics and the processing of numerical data. According to Basias and Pollalis (2018) the process of estimating numbers in quantitative research provides the fundamental link between empirical observation and mathematical expression of quantitative relations.

According to Sousa, Driessnack, and Mendes (2017) a research design is the framework for guiding the researcher plan how the study shall answer the research questions, how that plan shall be implemented and specifically how data shall be analyzed to answer those research questions. Literature provides several research designs for quantitative researches; however, this study adopted an explanatory research design because; and as with all other explanatory studies, its emphasis is on studying a situation or problem in

order to explain the relationships between various variables. In this particular case, the researcher collected quantitative data on each variable and implemented regression models so as to explain the effect of tangibility, communication, and empathy and turnaround time on patient satisfaction.

Even with a research design, the study needed a research strategy. A research strategy defines the process the researcher intends to use in collecting and interpreting data (Rahi, 2017). Literature offers various variants of research strategies ranging from experiment, survey, case study, ethnography, action research to narrative inquiry. This study adopted the strategy of case study which is explained by Thornhill, Saunders, and Lewis (2019) as an in-depth inquiry into a topic or phenomenon within its real life setting. The case in this research was the three branches of Kory Family Hospitals based in the County of Bungoma.

3.3 Population and Sampling

3.3.1 Target Population

In this particular case, the units of analysis and therefore the target population were patients of Kory Family Hospitals based in the County of Bungoma in the Republic of Kenya. Based on performance data from the Hospital Management Information System (HMIS) as of November 2019, Bungoma branch had 13,471 unique patients; Kimilili had 18,904 unique patients while Chwele Branch had 3,683 unique patients only. Uniqueness in this case is a way of counting a patient only once despite repetitive hospital visits. Based on these numbers, the number of possible patients that had the opportunity of being included in the study sample or simply the target population was 36, 058.

Table 3.1: Distribution of the target population

Branch	**Target Population**	**Frequency**
Bungoma	13,471	37.4%
Kimilili	18,904	52.4%
Chwele	3,683	10.2%
TOTAL	**36,058**	**100%**

Source: Author (2021)

3.3.2 Sampling Design: Stratified Random Sampling

In the process of selecting a representative sample for a study, after identifying the target population, the second step involves choosing a sampling frame. In this particular study, the target population was the patients that visit any of the three branches of Kory Family Hospital in the Bungoma County. All these patients had contacts and addresses and therefore feasibly accessible hence the target population of this study was synonymous to the sampling frame only that the sampling frame did not include patients aged below 18 years.

According to Bhattacherjee (2012), stratified sampling is a case of sampling where the sampling frame is divisible into homogeneous and non-overlapping subgroups (called "strata"), and a simple random sample can be drawn from each stratum or subgroup. Hospital patients in this case study was divisible into three major categories based on the branch from where they obtain their medical services. Given that there were three branches of the hospital, each branch represented a stratum and from each branch, a simple random sample was obtained.

According to Charan and Biswas (2013) when the population is more than 10,000 a sample size of 384 is adequate based on Fisher's below:

$$Patient\ Sample\ Size = Z^2 \frac{p(1-p)}{e^2}$$

Where Z the desired confidence limit is often put at 1.96 on a normal curve, p is the proportion of variability which is assumed to be fifty percent in a conservative study and e is the level of precision set at five percent. When these values are replaced in the formula above, the sample size becomes:

$$Patient\ Sample\ Size = 1.96^2 \frac{0.5(1-0.5)}{0.05^2}$$

This is then established as:

$$Patient\ Sample\ Size = 3.84\ x\ \left(\frac{0.25}{0.0025}\right) = 384$$

The determined sample was then distributed into each stratum according to the size of the stratum relative to the whole sampling frame.

Table 3.2: Distribution of the Sample Size

Branch	**Sample Size**	**Frequency**
Bungoma	144	37.4%
Kimilili	201	52.4%
Chwele	39	10.2%
TOTAL	**384**	**100%**

Source: Author (2021)

3.4 Data Collection Method

As noted above, data collected was quantitative by nature to enable an explanatory study. This particular data was collected from 384 respondents who were patients of the three branches of Kory Family Hospitals based in the County of Bungoma.

3.4.1 Primary Data Source

Given that most of the patients of the hospital were residents in the rural parts of the County, it is possible that after applying stratified random sampling, the respondents selected to participate in the study were from all over the vast County of Bungoma. These respondents were likely to be unique and might have never participated in such research; and therefore, data was collected from them for the first time. These types of data that is collected directly from the respondents or first-hand sources is called primary data and the source of the primary data was selected patients of any of the three branches of Kory Family Hospitals.

To reach all the 384 respondents, the researcher used the following process. First, a list of names and contacts for all patients that have ever visited a given branch was obtained.

Therefore, three patient lists were obtained which shall together form the sampling frame. From the Bungoma Branch list a random sample of 144 patients was derived and 201 patients from Kimilili Branch list as well as 39 patients from Chwele Branch list. Each selected patient was then contacted by the researcher and requested for a meeting with a member of the researcher's team. The researcher then employed 10 enumerators to assist in the data collection. These enumerators were trained by the researcher and acquainted to the data collection methods and instrument adequately. The researcher then went ahead and sends out enumerators to meet the selected respondents. The respondents had to first have an information session with the enumerator before being given the questionnaire to fill.

3.4.2 The Questionnaires

The questionnaire was divided into five sections immediately after the general instructions. Section A collected bio-data and questions here were structured questions where the respondents had to simply pick one of the answers. The aim here was to profile the respondents in terms of gender, age, education and other simple background information. None of these questions required the respondents to identify themselves in terms of name or any other personal identification. Section B asked questions on Tangibility (simplified as Physical Facilities), Section C was on Communication, Section D was on Empathy, and Section E was on Turnaround Time while section F asked questions on Patient Satisfaction.

Because data to be collected needed to be quantitative by nature, section B, all through to section F had questions designed in a way such that responses for each question were limited to a choice between five possible answers. For every question, the respondent was only required to respond as "strongly disagree", "disagree", "not sure", "agree" and "strongly agree". This is called a five-point Likert Scale since each response was rated on a scale ranging between 1 and 5. This type of data collection instrument is called a structured questionnaire and because each respondent was given the questionnaire to fill on their own, the instrument can as well be referred to as a self-administered structured questionnaire.

The questions used in the instruments of data collection were adopted from instruments developed by previous researchers. This was preferred because such instruments are already pilot-tested and subjected to other tests of both validity and reliability. Specifically, questions for measuring tangibility and turnaround time were adopted from instruments developed by Kitapci et al. (2014), questions for Communication were adopted from instruments developed by (Lucadamo, Camminatiello, & D'Ambra, 2020), questions for measuring empathy were adopted from Latiff, Din, and Ma'on (2013) instrumentation of the same construct while to measure patient satisfaction the study adopted instrumentation of Kitapci et al. (2014) and Quaschning et al. (2013).

3.4.3 Participants Protection

The fact that respondents to this study were patients had significant implications in several ways. First, the participants, especially the respondents, might have felt that their participation was a non-voluntary participation. Secondly, participants might have been concerned about what type of information was to be obtained from them and whether that was to include a disclosure on the nature of their illness. Finally, the respondents would have been concerned about how the information obtained was to be used.

To address these concerns, the researcher had to first appoint enumerators who had to undergo one day training. Hospital employees or staffs were ineligible to be appointed as enumerators. The enumerators were informed that they were free to choose whether to participate as enumerators or not and that they may decide to end their participation at any time. After this, all enumerators signed a consent form before being allowed to participate in the study. The selected enumerators were trained on how to relate with respondents, the sampling procedure, how to ensure that respondents participate voluntarily and what were the rights of the respondents.

Once all enumerators were well trained, they were tasked to ensure that all respondents undergo an information session after which the respondents had to indicate whether they give consent to participate or not. Only those that gave consent to participate were allowed to fill the questionnaire. In this session, respondents were informed of their right to choose whether to participate or not. They were informed that if they choose to

participate there was no monetary benefit. In addition, they were informed that information sought from them shall not include any personal information or any sort of identification. In particular, they were informed that information on the nature of their illness was not needed and was not be divulged. Lastly, all respondents were assured and given a signed undertaking stating that all data and information collected from them was to be treated as confidential and shall only be used for academic purposes.

3.5 Data Analysis

Data collected was analyzed quantitatively by running descriptive statistics that help in describing the distribution of the collected data and help in identifying whether collected data was adequate or not. It was also used in identifying the response rate and descriptive measures such as the mean, mode, median and other summary statistics. Further analysis included computation of measures of dispersion and association such the range, minimum value, maximum values, standard deviations and generally provided further description of the distribution of the data collected. Measures of skewedness and kurtosis were also computed and discussed.

To address the research questions, answers were sought from the collected data by running empirical regression models. These models were estimated using various statistical techniques aided by computer software called Statistical Package for Social Science (SPSS). The multiple linear regression model that was used in this study is specified as follows;

$$y_1 = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon_i$$

y_1= level of patient satisfaction

α = constant.

$\beta_1 \ldots \beta_5$= the slope which represented the degree to which patient satisfaction changes when the corresponding measure of service quality changes by one unit.

x_1= level of tangibility

x_2= level of communication

x_3= level of empathy

x_4= Turnaround time

ε = error term

3.6 Research Quality

One of the issues on research methodology that concern most researchers apart from research design pertains the integrity of the research findings to stand against any scrutiny often referred to us the research quality (Thornhill et al., 2019). According to Thornhill et al. (2019), most quantitative researchers believe that the two main canons of a good scientific inquiry are that of reliability and validity. As such, reliability and validity of research are always used to assess the quality of research. Below is a discussion on how this research undertakes to achieve reliability and validity thresholds.

3.6.1 Validity

Validity is a very important characteristic of research quality. Validity defines whether a research truthfully measures that which it was intended to measure or how honest the findings of a research study are (Golafshani, 2016). To test whether a research possesses this quality of validity, researchers often ask themselves whether measures adopted by the research to measure certain phenomenon actually measure that they purport to be measuring. If that is not the case, then conclusion and generalizations derived from the research evidence would not be valid. On this basis, there are various types of validity that a good research must seek, the main one being construct validity and content validity.

Construct validity refers to how well the researcher translates or transforms a notion, variable or concept, which is sometimes in research terminologies simply referred to as a construct, into a functioning reality (Drost, 2017). In other words, construct validity is concerned with how well a research measures the constructs it purports to measure in

their operational ways. To achieve construct validity in this research, the researcher ensured that all indicators of each construct are well grounded in relevant literature and have strong theoretical underpinning. Secondly, the researcher ensured that indicators for each construct were derived from instruments used by previous researchers to measure the same construct. The guiding source of indicators for each construct is specified in section 3.4.2.

Similarly, the researcher ensured that the research met the requirements of a content validity. Content validity refers to the degree to which a measure adequately "covers" the construct of interest. This is an important concern because most concepts or constructs in the various fields of social sciences are generally ambiguous in terms of content and lack a general consensus or an accepted single theoretical definition. Therefore, the burden falls on the researcher not only to provide a theoretical definition that is acceptable but also to select indicators that thoroughly cover its domain and dimensions. To achieve content validity, the researcher subjected all operational definitions, choice of concept and construct indicators, measurement scales and all instruments of measurement to a review by a panel of experts.

3.6.2 Reliability

Reliability of research instrument is mainly concerned with the consistency of an instrument to produce consistent scores or findings under different times or conditions. Due to lexical and sentinel miscomprehension of questions, indicators, constructs or concepts, respondents may interpret the same question differently even when the researcher meant something else (Thornhill et al., 2019). For the purposes of reliability, the main concern for this research is to ensure that there is internal consistence among the questions in the instrument.

Internal consistency is related to the reliability of the test components. Generally, internal consistency looks at the consistency inherent within the instrument and questions how well the questions and the instruments; as a whole, measures a specific construct or concept. Going by the words of Drost (2017) for a measure to be internally consistent, there must be a high average inter-correlations among all individual

questions. The test for internal consistency to be used in this study is the so called Cronbach's Alpha which is a coefficient of internal consistency. However, to improve internal consistence, the researcher carried out a pre-test where the research instruments was given out to a small group of respondents. The results of the pre-test were analyzed for internal consistency and questions readjusted appropriately to ensure respondents understood the questions well and their responses were a product of a common understanding of questions and constructs.

3.7 Ethical considerations.

A letter of introduction was obtained from Strathmore Business School and was presented to the hospital management for the purpose of requesting for permission to conduct a scientific study that involved the hospital's clients. Ethical approval was also sought from both the University's research ethics committee and the National Commission for Science, Technology & Innovation (NACOSTI). Once permitted, the researcher proceeded to obtain informed consent from participating patients to collect and apply the data for the declared study purpose only while maintaining confidentiality of participant's identity and data. The report on the study is available to participants upon request.

CHAPTER FOUR
DATA PRESENTATION, RESULTS AND FINDINGS

4.1 Introduction

This chapter presents results of the data analysis process accompanied by detailed interpretations and discussions of the results. These results are presented in the form of statistical numbers, percentages, tables and graphs to enable a fast understanding. Essentially, the first part of this chapter, which is presented after reporting on the response rate, focuses more on background information relating to the respondents. This is followed by an analysis of the reliability and goodness of the data collected, before presenting a separate descriptive analysis of each construct and finally ending up with a regression analysis.

4.2 Response Rate

Here, the response rate is measures the number of respondents that returned adequately filled questionnaires out of all questionnaires that were given out. From the previous chapter, a total of 384 respondents were selected using stratified random sampling technique. And therefore, 384 questionnaires were administered by the research team on the selected 384 respondents. The selected respondents had to be located and requested to participate freely and be assured that their participation shall only be accepted when it is voluntary and that the information they provide shall not be personal and was to be treated as confidential data and utilized only for academic purposes.

After all, above had been done, the researcher ended up with a massive return of 375 questionnaires out of 384 questionnaires that had been given out by the researcher's trained enumerators. This is an impressive response rate which stands at a massive 97.66 percent calculated by expressing the number of returned questionnaires as a percentage of the questionnaires that were originally sent out. All having been said, when the response rate is 97.66 percent, it equally implies that only 2.34 percent of the

questionnaires, which represents about only 9 questionnaires, were not returned for various reasons.

Table 4.1: Response Rate

	Sample		Total
	n	Percent	Cumm. Percentage
Returned	375	97.66%	97.66%
Unreturned	9	2.34%	100.00%
	384	100.00%	

Source: Author (2021)

The notion of the response rate is very important for research because it goes to the heart of admissibility of the research findings and the ability to generalize results from such sample to the general population. Normally, when the response rate gives a researcher a very tiny sample, then such results shall not be admissible and projection of such findings and conclusions to the whole population shall not be accepted. However, in this study, only 3 respondents failed to provide adequate data and almost all respondents provided sufficient data to enable data analysis. Therefore, further data analysis was deemed attainable and the sample was deemed adequately representative.

4.3 Background Information

After receiving all acceptable questionnaires back from respondents, the researcher sought to establish a clear profile, but in general terms, of the type of respondents from whom data was collected. Basically, data was analyzed about their gender, age and whether they reside in Bungoma County or otherwise. The results of background information analysis are presented below in various sub-sections.

4.3.1 Gender

The question on gender simply asked the respondent to indicate whether they were male or female. This was a simple question where a yes or no response was adequate. Out of 375 responses, 132 were found out to be male while the remaining 243 were female.

This amounted to 35.20 percent being male and 64.80 percent being women. Therefore, most of the respondents were female and only just about a third were male.

Figure 4.1: Gender of the respondent

Source: Author (2021)

This indeed mirrors the reality on the ground where it is common to find more female patients admitted in hospitals than male patients. Although the reasons for higher number of female patients in hospitals than male patients are a matter that falls beyond the scope of this study, most people would argue that in most families, it's the mothers that tend to take care of all sick family members in the hospitals and probably why they would be more females in any given hospitals at any given time. Therefore, the sample selected was representative of the true population, though this assertion is to be tested statistically later under test for reliability and goodness of fit.

4.3.2 Age

Age of a person can be reported on a continuous quantitative scale which would mean that most respondents would have a different value as a response to a question on age. To solve this dilemma, the researcher grouped responses into six age categories running

from 18 years all the way up to above 48 years. Respondents were simply asked to indicate the age group they fall in. The results are presented in the form of bar graphs which are easy to understand and quick to disseminate the information.

From the bar graphs, it is evident that majority of the patients are young fellows and youth probably in secondary schools or just starting college falling between 18 years and 23 years. This group constitutes about a third of the patients and specifically 29.87 percent out of the total number of patients at the hospital. Second to this group are the aged adults that are 48 years and above who constitute 23.47 percent of the patients while middle aged persons around 42 years to 47 years were the minority age group.

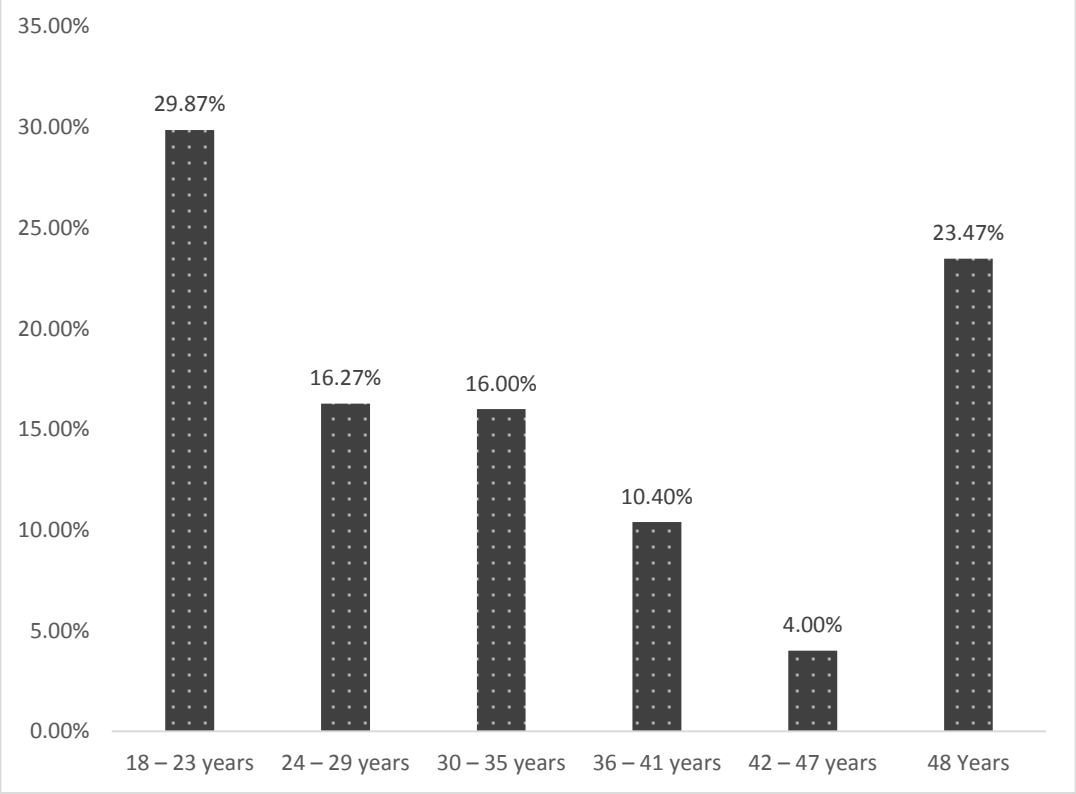

Figure 4.2: Residence Status of the respondent

Source: Author (2021)

4.3.3 Residence

When it comes to residence, the researcher was concerned with establishing whether the respondent was a resident of Bungoma County or not. The opposite meant that the respondent would be a resident of a nearby county such as Kakamega County, Trans Nzoia County or Busia County. Although the study was focused on the effects of service quality on patient satisfaction among rural Hospitals in Western Kenya, even with a clear focus on the County of Bungoma, it was adding more value that respondents were residents of beyond Bungoma County.

However, the results of this analysis showed that out of 375 respondents only 22 were residents out of Bungoma County suggesting that the hospital mostly serves residents of the County of Bungoma and about 5.90 percent are residents of other counties. These results are presented in the table below. It is important to note that the fact that a respondent resides in a different county from Bungoma County does not exclude them from the study because the study broad focus was Western Region and only the case study was a hospital which happens to be in Bungoma County.

Table 4.2: Bungoma County Residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	22	5.9	5.9	5.9
	Yes	353	94.1	94.1	100.0
	Total	375	100.0	100.0	

Source: Author (2021)

When all is said and done, the fact established that the majority of the respondents were residents of the County of Bungoma gives more comfort to the researcher that the results would be generalizable to the larger Western Region.

4.3.4 Repeat Visit

Another question that sought to establish that the respondents were mostly from the region of concern was designed to ask the respondent on whether they have been treated

at the facility in question for more than once. If the majority of the respondents would point out that they have sought treatment from the hospital repeatedly, then it would make sense to assume that they are probably residents of the area around the hospital. It is important to remember that the research sought to understand service quality and patient satisfaction among hospitals in Western Kenya. On top of this, it will indicate that they have interacted with the facility enough to give reliable answers to the questions.

The result showed that over 80.80 percent of the patients have been served in the hospitals for more than one time. In other words, out of ten patients that visit Kory Family Hospital, eight are repeat patients while two would be visiting the hospital for the first time. This could also suggest a level of patient loyalty but most importantly for this case, it suggested that most of respondents are from around the hospitals and are well informed about the hospital.

Table 4.3: Patients repeat visits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	New	72	19.2	19.2	19.2
	Old	303	80.8	80.8	100.0
	Total	375	100.0	100.0	

Source: Author (2021)

4.4 Reliability and Goodness of fit Tests

Test for reliability is mostly concerned with whether the responses received from respondents are consistent from one respondent to another or not. Specifically, internal consistency; which focuses at the consistency inherent within the instrument and questions as far as measurement of a particular construct or concept is achieved, was tested using Cronbach's Alpha coefficient. Cronbach's alpha is a statistic ordinarily cited by researchers when they want to show that the questions and instruments that have been built or embraced for research are fit for the purpose especially when the Cronbach's Alpha is above 0.75 (75 percent).

In this particular study, the test for reliability returned coefficients between 0.868 and 0.955 that is between 86.8 percent and 95.5 percent which indicates a high level of reliability. Perhaps this high reliability was occasioned by the fact that instruments and questions used in this study were pretested instruments adopted from previous studies in the fields of service quality and patient satisfaction. Either way, the level of Cronbach's Alpha indicates that the instruments and the questions adopted in this study were consistent and analysis using data collected by these questions and instruments would be reliably projected on the whole population of hospitals in Western Kenya.

Table 4.4: Reliability Statistics

Construct	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
Tangibility	0.918	0.918
Communication	0.876	0.876
Empathy	0.955	0.955
Turnaround	0.925	0.925
Patient Satisfaction	0.868	0.868

Source: Author (2021)

Despite the high value of reliability as established by the Cronbach's Alpha test, it is also possible and important to determine the adequacy of the sample data for further analysis. To do this, the researcher used the so called the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. Kaiser-Meyer-Olkin (KMO) which was adopted to test the sufficiency of the sample data, whereas Bartlett's Test of Sphericity was used to test how closely the sample mimicked the true population such that when the two tests reveal positive results then data obtained from the sample can be deemed to be adequate and appropriate to be subjected for further analysis of the relationships existing among the constructs.

In this study, the tests returned a Kaiser-Meyer-Olkin (KMO) of 0.847 and Bartlett's test of Sphericity revealed a value of 4,518.59 which was significant ($p<0.05$) given a degree of freedom of 300. Therefore, the sample is appropriate and the data obtained is adequate for further analysis because the value of KMO is close to 1.0 and the

significance value of the Bartlett's test is close to 0.0. these results are portrayed in the table below:

Table 4.5: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.847
Bartlett's Test of Sphericity	Approx. Chi-Square	4518.586
	df	300
	Sig.	.000

Source: Author (2021)

4.5 Descriptive Analysis of the Research Constructs

4.5.1 Tangibility

Five questions were asked in the questionnaire with an aim of measuring the patients' perception of the physical facilities of the hospitals. The questions sought patient's views on matters such as the conditions of hospital rooms and beds, general cleanliness, staff behaviours or conduct, equipment and tools owned by the hospital and neatness of hospital staff. The results of responses from the patients are analyzed in general terms to give a summary of what all patients, on average, feel about the physical facilities of the hospital. These results are presented in the Table 4.6 below.

According to Table 4.6, on average, the 375 respondents more than agree that rooms and beds are in good condition, the hospital facilities are appealing and generally clean; staffs behave professionally and appear neat. However, they less than agree but not to be undecided on how modern hospital equipment and tools are. The low standard error indicates clustering of responses around their mean suggesting a generally similar perception on all the five question.

Table 4.6: Descriptive Statistics of Tangibility

	N	Mean	
	Statistic	Statistic	Std. Error
Hospital rooms and beds are neat and in good condition	375	4.2240	.03711
Hospital facilities are appealing and generally clean	375	4.1200	.03579
Hospital staff demeanor is professional	375	4.2139	.04068
The hospital has modern equipment and tools	375	3.9733	.03922

Hospital staff appear neat	375	4.1120	.04043
Valid N (list wise)	375		

Source: Author (2021)

For every respondent, the researcher obtained a response for each of the five questions on tangibility. These responses were in the form of a Likert scale score between 1 and 5. Therefore, for every respondent, five scores were obtained. These scores were then summed up and divided by five to obtain a mean score - a single value per respondent for their perception of tangibility of the hospital. In other words, to measure the construct of tangibility, 375 mean values were obtained.

These mean values were to be used as measures of the construct of tangibility in the subsequent analysis in this study. The researcher further analyzed the values of tangibility with a view of describing its distribution relative to the standard normal distribution. The results of this analysis are presented in the Table 4.7 and Figure 4.3 below. Evidently, the mean of Tangibility is 4.1285 on a scale of 1 to 5 which implies a value that is higher than 4 (agree) meaning that most patients on average tend to agree that physical facilities of the hospitals were generally at an acceptable level. The standard error is very low suggesting a distributing that is basically clustered together starting from a low of 2.40 and a high of 5.00 but still closer to a normal mesokurtic distribution because of low kurtosis (positive but <3) and skewedness (about zero) values.

Table 4.7: Distribution statistics of Tangibility

N	Valid	375
	Missing	0
Mean		4.1285
Std. Error of Mean		.02311
Median		4.2000
Mode		4.20
Skewedness		-.706
Std. Error of Skewedness		.126
Kurtosis		1.141
Std. Error of Kurtosis		.251
Minimum		2.40
Maximum		5.00

Source: Author (2021)

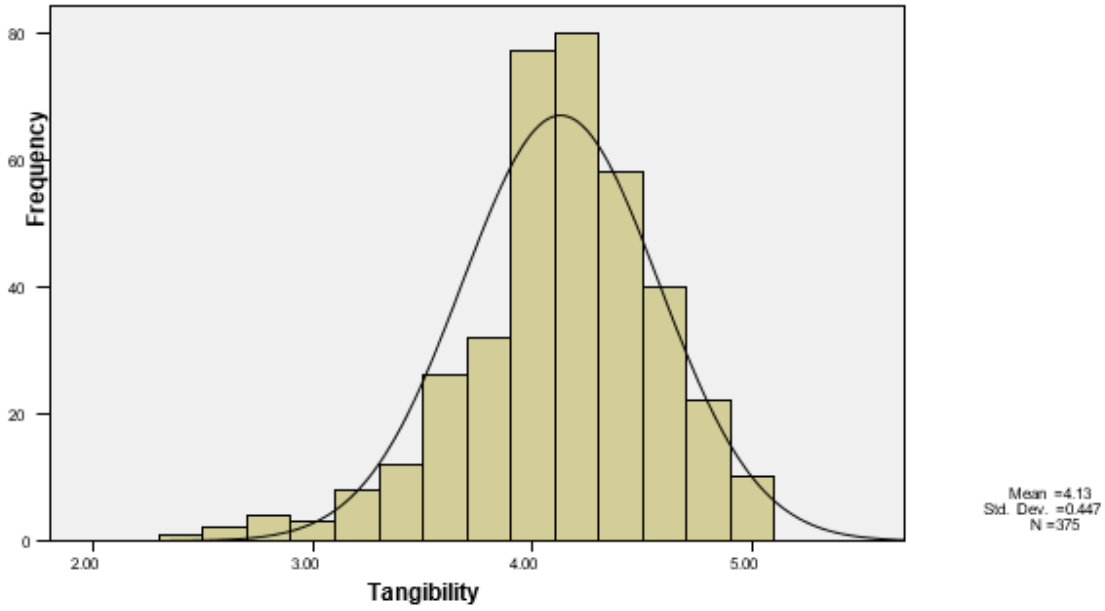

Figure 4.3: Distribution of Tangibility

Source: Author (2021)

4.5.2 Communication

To measure the construct of communication, the researcher equally used five questions on a Likert scale. The questions sought to establish the patients view on whether hospital staff listen and understand them well, whether hospital staffs communicate uniform information that is satisfactory and adequate about their ailment and whether other non-verbal forms of communications such as process flows, procedures and schedules are well understood by the patients. The feedback indicated mean values per question to be all above 4 (agree) suggesting that patients generally agree that communication in the hospitals is good or acceptable. The low values of the standard error indicate a distribution of score very much close to the mean suggesting a generally agreeing responses all around the mean value. The results of this analysis are presented in Table 4.8 below:

Table 4.8: Descriptive Statistics of Communication

	N	Mean	
	Statistic	Statistic	Std. Error
Hospital staff listened and understood me well	375	4.2293	.04173
Staff do not provide contradictory information	375	4.1920	.04086
I have received satisfactory information on the disease	375	4.1120	.03693
I correctly understood hospital processes and schedules	375	4.0827	.03982
I have received adequate information about therapies and investigations	375	4.2139	.04325
Valid N (list wise)	375		

Source: Author (2021)

To generate values for the construct of communication, an index was developed in a similar way as for tangibility construct above. Essentially, there was only one value per respondent obtained as a mean of all scores on each of the five questions that were asked in relation to the construct of communication. Therefore, 375 mean values were obtained which are to be used to do successive further analysis. However, their distribution was tested and established to be very much close to a normal distribution with a mean of 4.1660 and standard error of 0.02688 with skewedness of less than -1 and kurtosis of less than 3, all suggesting a distribution that is symmetrical, mesokurtic and basically very close to a normal distribution. The results of this analysis are presented in Tables 4.9 and Figure 4.4 below

Table 4.9: Distribution statistics of Communication

N	Valid	375
	Missing	0
Mean		4.1660
Std. Error of Mean		.02688
Median		4.2000
Mode		4.00
Skewedness		-.803
Std. Error of Skewedness		.126
Kurtosis		.984
Std. Error of Kurtosis		.251
Minimum		2.20
Maximum		5.20

Source: Author (2021)

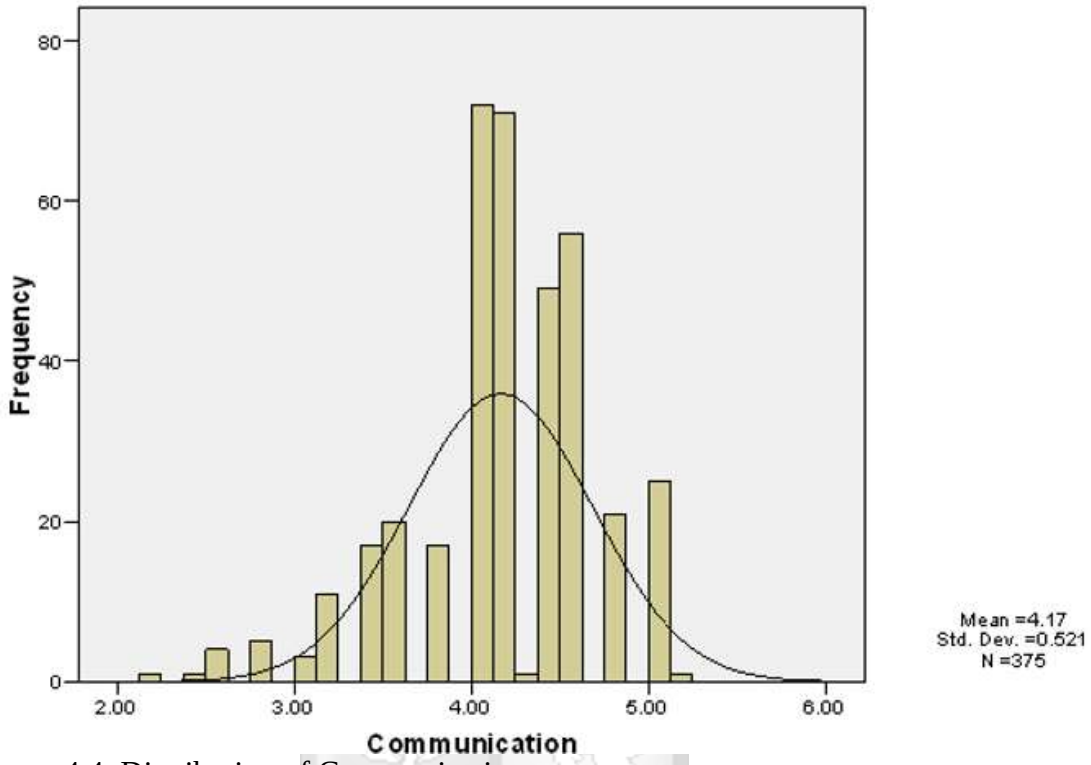

Figure 4.4: Distribution of Communication

Source: Author (2021)

4.5.3 Empathy

Similar to the above constructs, empathy was equally measured by asking five questions to the respondents whose responses were restricted to a five-point Likert scale. The questions varied from trying to establish whether patients were listened to emphatically and given individual attention to generally being given an enabling environment to express their ailment and challenges (see the table below for specific questions). Once again the responses on the five questions for the all respondents were generally above 4 with the minimum being a 4.1573 and the highest being a 4.4773. the standard errors were very low all below 0.05 indicating a general agreement on the questions. The results are reported below in Table 4.10.

Table 4.10: Descriptive Statistics of Empathy

	N	Mean	
	Statistic	Statistic	Std. Error
I have been given adequate time for me to explain my problem	375	4.4773	.03598
The staff gave individual attention to me	375	4.2827	.03907
The staff communicated with me by using an understandable language	375	4.1573	.04253
The staff treated me fairly	375	4.2160	.04010
The staff provided convenient operating hours that suited my needs	375	4.1947	.04109
Valid N (list wise)	375		

Source: Author (2021)

To generate values for the construct of empathy for further analysis, an index was developed where a single score was obtained per respondent by simple average of scores on the five questions. These values were then analyzed for distribution which was equally found to be close to a normal distribution with a mean of 4.2656, standard error of 0.03011, skewedness less than -1 and kurtosis of less than 3. The results are presented in the Table 4.11 and Figure 4.5 below.

Table 4.11: Distribution statistics of Empathy

N	Valid	375
	Missing	0
Mean		4.2656
Std. Error of Mean		.03011
Median		4.2000
Mode		5.00
Skewedness		-.738
Std. Error of Skewedness		.126
Kurtosis		.464
Std. Error of Kurtosis		.251
Minimum		2.20
Maximum		5.00

Source: Author (2021)

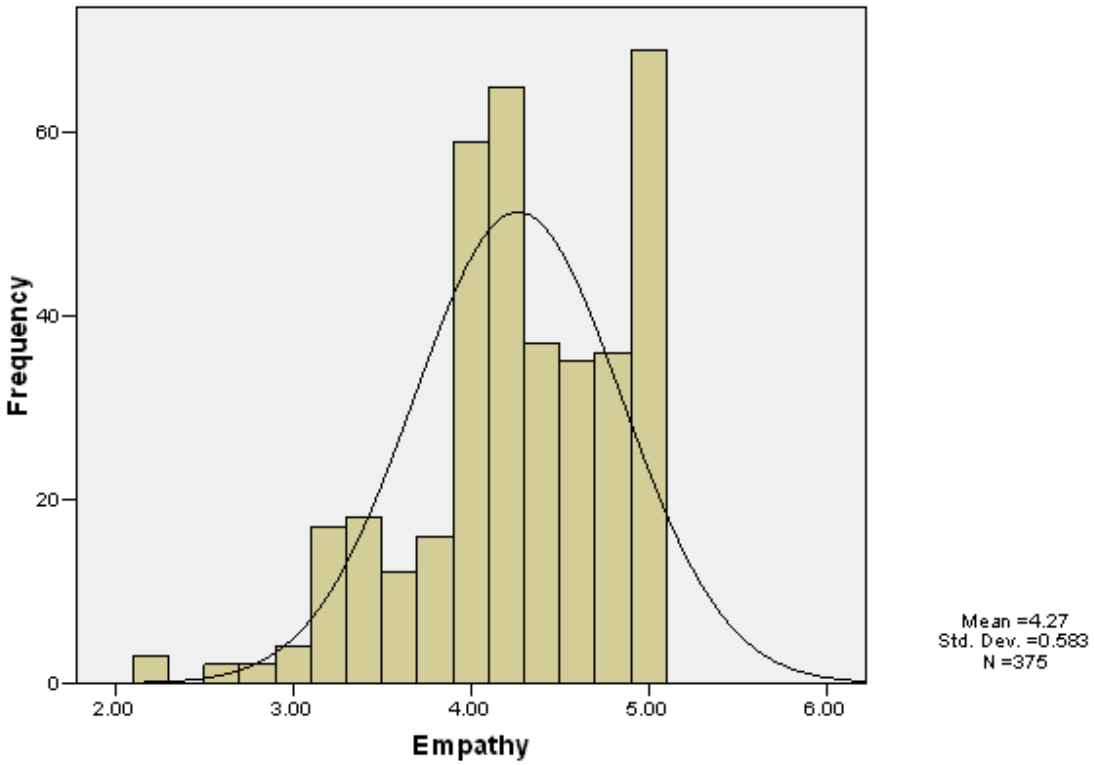

Figure 4.5: Distribution of Empathy

Source: Author (2021)

4.5.4 Turnaround Time

Similar to what was done with the first three constructs, to measure the construct of turnaround time, the researcher equally asked five questions. The aims of the questions were to establish promptness of the service, queue management, time wastage and where delays are unavoidable, whether such delays were explained or an apology given to the patients or not. The results below in Table 4.12 show that, on the whole, patients are generally impressed with the turnaround time and all issues around managing time wastages. The mean scores of each of the question for all the 375 respondents were all

above 4 on a Likert scale of 1 to 5 indicating a higher than agreeable score of 4 in the Likert scale.

Table 4.12: Descriptive statistics of Turnaround Time

	N	Mean	
	Statistic	Statistic	Std. Error
The service was generally prompt	375	4.4027	.04016
I think it did not wait in the queue more than necessary	375	4.2080	.04135
The results for tests and investigation were not delayed unnecessarily	375	4.2027	.03725
When there was a delay, staff explained or apologized	375	4.1360	.04239
The staff showed a sincere interest to solving my problems on time	375	4.2187	.04323
Valid N (list wise)	375		

Source: Author (2021)

Once again to formulate an index of values for the construct of turnaround time for every respondent, the researcher followed a similar approach as one followed in the other constructs above. For every respondent, the mean of Likert scores for the five questions was calculated leading to 375 mean values that represented the construct of turnaround time. The researcher further examined the distribution of this construct and obtain a mean of 4.2336, standard error of 0.0294, mode of 4.2000, skewedness of less than -1 and kurtosis of less than +3 suggesting a symmetrical, mesokurtic and close to normal distribution. The results of this analysis are presented below in Table 4.13 and Figure 4.6.

Table 4.13: Distribution statistics of Turnaround Time

N	Valid	375
	Missing	0
Mean		4.2336
Std. Error of Mean		.02940
Median		4.4000
Mode		4.2000
Skewedness		-.956
Std. Error of Skewedness		.126
Kurtosis		.674

Std. Error of Kurtosis	.251
Minimum	2.40
Maximum	5.00

Source: Author (2021)

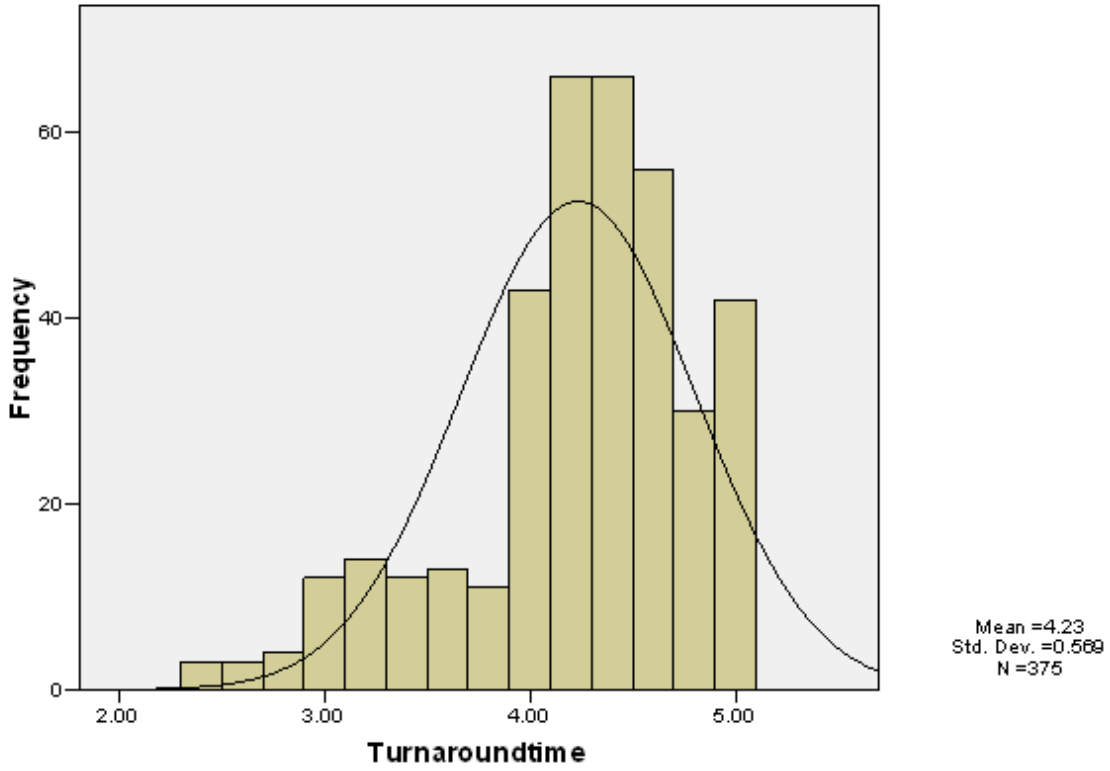

Figure 4.6: Distribution of Turnaround Time

Source: Author (2021)

4.5.5 Patient Satisfaction

The researcher sought to obtain respondents' view in a measurable way on patient satisfaction. To do this, the data collection instrument was designed with five questions on patient satisfaction where respondents were restricted to a five-point Likert scale. The questions asked patients on five key indicators of satisfaction, namely: cooperation, adherence to medical instructions, acceptance of treatment plan, encouragement of new patients (reference) and return treatment. The responses from all the 375 respondents were analyzed question by question and results are presented in Table 4.14 below.

Evidently, patients generally agree that they are satisfied with lowest mean score being 4.1733 and highest being 4.4560 with all standard errors being below 0.0500.

Table 4.14: Descriptive statistics of Patient Satisfaction

	N	Mean	
	Statistic	Statistic	Std. Error
I cooperated with the hospital staff at all times	375	4.4560	.03303
I plan to adhere to the medical instructions strictly	375	4.2453	.03846
The treatment plan is correct and acceptable	375	4.1733	.03811
I shall encourage more people to come to this hospital	375	4.1845	.03789
I shall come back here for treatment in future when I need it again	375	4.3636	.04030
Valid N (list wise)	375		

Source: Author (2021)

However, to be able to use data for patient satisfaction in the further analysis of this study, the researcher used the mean of scores on the five questions per respondent thereby obtaining 375 mean values representing a measurement for patient satisfaction. These mean values were equally examined for their shape of the distribution and obtained the following figures: the mean of 4.2840, standard error of 0.02697, skewedness value less than -1 and kurtosis value of less than -3 suggesting a distribution that is symmetrical, mesokurtic, very close to a normal distribution but with bigger range than the other constructs with a minimum value of 2.8 and a maximum value of 5.0

Table 4.15: Distribution statistics of Patient Satisfaction

N	Valid	375
	Missing	0
Mean		4.2840
Std. Error of Mean		.02697
Median		4.2000
Mode		5.00
Std. Deviation		.52228
Skewedness		-.404
Std. Error of Skewedness		.126

Kurtosis	-.520
Std. Error of Kurtosis	.251
Minimum	2.80
Maximum	5.00

Source: Author (2021)

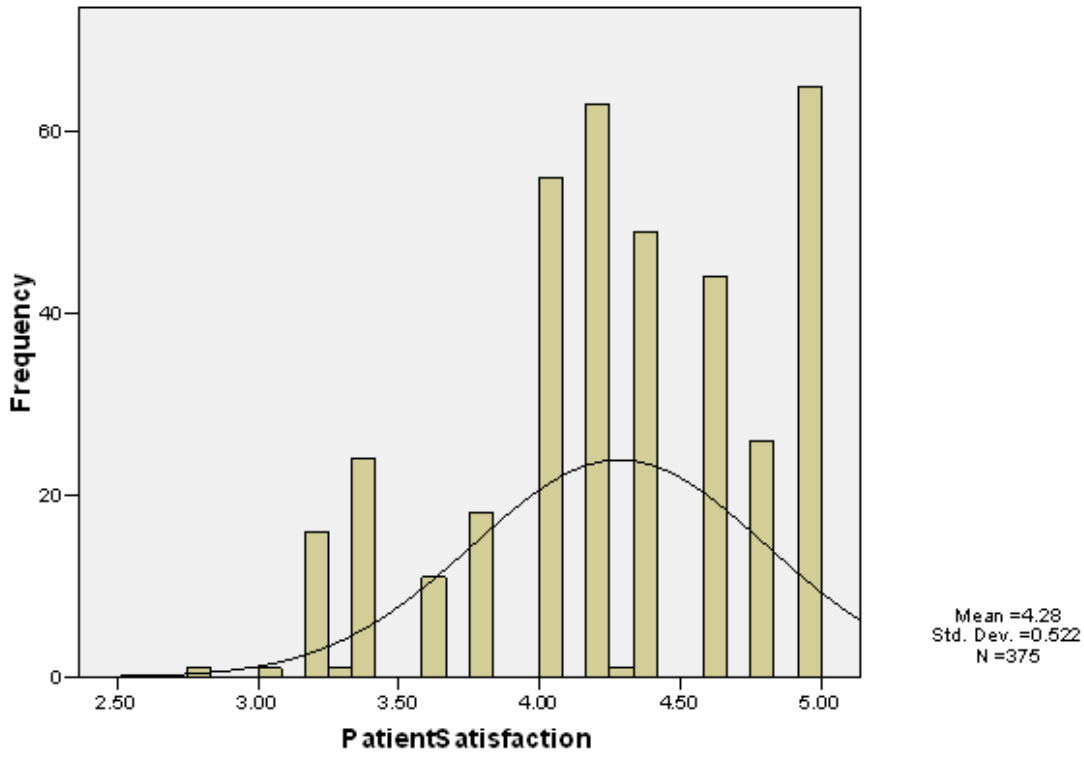

Figure 4.7: Distribution of Patient Satisfaction

Source: Author (2021)

4.6 Correlation Analysis

In addition to understanding the description of the variables and looking at their distribution, the researcher also sought to look at the nature, magnitude and direction of association between the constructs/variables as measured in the Kory family Hospitals. The most common measure of association and one that was adopted for this study is the

so called Pearson Coefficient of Correlation, basically referred to as correlation. From the descriptive analysis above, five variables were obtained where each of the variable had 375 observations such that every respondent had a single value for each of the five variables.

Analysis of association here proceeded on the premise that there could be some form of association, on general basis, between the five variables. The results for associations between the variables are reported below together with their extant degree of significance. As is evident from the table of results below, there exists a strong correlation between every pair of the variables which are all statistically significant at 99 percent level of confidence on a two-tailed test of significance. Furthermore, the direction of all associations is positive suggesting that improvement in any of the variable would likely be associated with an improvement all other variables.

Apart from showing size and magnitude of association, correlation analysis also acts as a precursor of regression analysis especially in suggesting a possible relationship between independent and dependent variables. By looking at the correlation matrix below, it's clear patient satisfaction has very interesting correlations with all other variables. Evidently with patient satisfaction, tangibility has correlation of 0.497 (level of significance $\rho = 0.00$), communication has a correlation of 0.625 ($\rho = 0.00$), Empathy has a correlation of 0.670 ($\rho = 0.00$) while turnaround time has a correlation of 0.593($\rho = 0.00$). All these correlations are positive and significant at 99 percent level of confidence.

Table 4.16: Correlation Analysis

		Tangibility	Communication	Empathy	Turnaround time	Patient Satisfaction
Tangibility	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	375				
Communication	Pearson Correlation	.501(**)	1			
	Sig. (2-tailed)	.000				
	N	375	375			
Empathy	Pearson Correlation	.453(**)	.588(**)	1		
	Sig. (2-tailed)	.000	.000			
	N	375	375	375		

Turnaround time	Pearson Correlation	.392(**)	.590(**)	.687(**)	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	375	375	375	375	
Patient Satisfaction	Pearson Correlation	.497(**)	.625(**)	.670(**)	.593(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	375	375	375	375	375

** Correlation is significant at the 0.01 level (2-tailed).

Source: Author (2021)

4.7 Regression Analysis

When all has been said and done, the main objective of this study is generally to establish the effect of service delivery on patient satisfaction in Western Region. This means that the analysis should indicate how variables that are regarded as independent variables affect the dependent variable. The analysis adopted in this study to unravel these causal relationships is the regression analysis.

First, the researcher estimated a regression model in which patient satisfaction is the dependent variable of the model while tangibility, communication, empathy and turnaround time are the independent variables. Basically, this model was stated as:

$$y_1 = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon$$

Where y_1 is the level of patient satisfaction, α is the constant, $x_1$is the level of tangibility and $\beta_1$stands for the coefficient for tangibility, $x_2$is the level of communication, β_2 is the coefficient of communication, $x_3$is the level of empathy, β_3 is the coefficient for empathy, $x_4$is turnaround time, β_4 is the coefficient for turnaround time and ε is the error term.

The results of this analysis are represented in three tables. First are the model summary, analysis of the variance (ANOVA) and the coefficient table. According to the Model Summary below, the regression model shows that the four variables would explain a massive 56.9 percent of changes in patient satisfaction leaving a residual that would explain the remaining 43.1 percent. When a regression explains more that 50 percent of the dependent variable, such model is said to be strong and successful.

Table 4.17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757(a)	.574	.569	.34409

a Predictors: (Constant), Turnaround time, Tangibility, Communication, Empathy

Source: Author (2021)

To check the model fit, that whether the model fits the data collected, the table below shows that out of 102.759 sum of squares, the regression model explains 58.952 sum of squares which, once again stands for 56.9 percent. Furthermore, the F-statistics are used to show whether the model is fit or otherwise and the results indicate that the model is significant at 95 percent level of confidence.

Table 4.18: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.952	4	14.738	124.477	.000(a)
	Residual	43.808	370	.118		
	Total	102.759	374			

a Predictors: (Constant), Turnaround time, Tangibility, Communication, Empathy
b Dependent Variable: Patient Satisfaction

Source: Author (2021)

Given that the regression model performed well and fits on the collected data statistically well, the researcher accepted the results of the model and went further to explain the specific results of the model in relation to each independent variable thereby providing the results of the research in terms of the specific hypothesis and objectives of the study. The Table 4.19 below provides a summary of coefficient results according to the regression model estimated above. This results are discussed and explained in more details below under a sub-section of each research objective.

Table 4.19: Coefficients

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	.555	.184		3.023	.003		
Tangibility	.172	.047	.148	3.678	.000	.709	1.411
Communication	.264	.047	.264	5.671	.000	.531	1.883
Empathy	.318	.045	.357	7.124	.000	.459	2.178
Turnaround time	.133	.045	.146	2.959	.003	.476	2.099

a Dependent Variable: Patient Satisfaction

Source: Author (2021)

4.7.1 Effect of Tangibility on Patient Satisfaction

The first objective of the study sought to establish the effect of tangibility on the patient satisfaction. To meet this objective, the regression analysis included tangibility as an independent variable and patient satisfaction as dependent variable was estimated and results were as presented in the table above. Evident from the Table 4.19, tangibility appear to have a very small positive but statistically significant effect on patient satisfaction with$\beta_1 = 0.172$ ($Standard\ Error\ (S.E) = 0.047$), and significant at 1 percent (99 percent degree of confidence)

Basically, these results mean that when tangibility is improved patient satisfaction shall also improve while at the same time, when tangibility declines, patient satisfaction shall also decline. However, the change induced into patient satisfaction due to a given change in tangibility was just about 17.2 percent of the change in tangibility. Therefore, these results establish that indeed tangibility has a positive and important effect on patient satisfaction at a statistical level of confidence of about 99 percent.

4.7.2 Effects of communication on patient satisfaction

The second objective of this study is to establish the effect of communication on patient satisfaction. This objective was similarly examined by estimating a regression model where communication is an independent variable among other independent variables

while patient satisfaction is a dependent variable. The results are presented in Table 4.19 above where it was established that $\beta_2 = 0.264, S.E = 0.047$and $\rho = 0.01$.

These results mean that communication has a positive and statistically significant effect on patient satisfaction at a level of 99 percent confidence. Therefore, when communication is improved, according to these results, patient satisfaction shall also improve and when communication declines, patient satisfaction shall also decline. However, the change in patient satisfaction shall only be 26.4 percent as compared to the change in communication. Either way, the change in patient satisfaction shall always be in the same direction as the change in communication.

4.7.3 Effect of empathy on patient satisfaction

The third objective of this study was to establish the effect of empathy on patient satisfaction. This was similarly tested by running the regression model stated in section 4.7 above. The results of the model estimation are presented in Table 4.19 above. These results shows that of all the components of service quality, empathy has the highest contribution to patient satisfaction such that for a given change, empathy would cause the biggest change in patient satisfaction than any of the other three components of service quality.

In particular, the regression results indicate that $\beta_3 = 0.318, S.E = 0.045$ and $\rho = 0.01$, which implies that the effect of empathy on patient satisfaction is positive and statistically significant at 99 percent level of confidence. Therefore, for a given change in empathy, patient satisfaction would change in the same direction by about 31.8 percent of the change in empathy.

4.7.4 Effect of turnaround time on patient satisfaction

The final objective of the study was to establish effects of turnaround time on patient satisfaction. This was equally achieved by the estimation of the regression model in section 4.7 and the results are also in Table 4.19 above together with other results for the

other three objectives. Evidently, turnaround time has the lowest contribution for a given change on patient satisfaction of all the components of service quality.

The specific results for this objective indicate that $\beta_4 = 0.133, S.E = 0.047$and $\rho = 0.01$. this implies that turnaround time has the smallest positive but statistically significant effect on patient satisfaction such that for a given change in turnaround time, patient satisfaction would change in the same direction by only about 13.3 percent of the change in turnaround time. This amount of change is small but very important and cannot be neglected.

CHAPTER FIVE
DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings in relationship with the objectives of the study and goes further to discuss these findings to establish how the research has fulfilled the main questions it set out to address. After discussing the findings, the chapter shall set out to draw conclusions and recommendations to the stakeholders and finally recommend areas of further research work in the field.

5.2 Discussion of the Results

The general objective of this research was to establish the effects of service quality on patient satisfaction among rural hospitals in the Western Kenya by utilizing Kory Family Hospitals in the County of Bungoma as a case study. To achieve this general objective, the research divided the focus into answering four main research questions. Data was collected as explained in Chapter three and analyzed as per the previous Chapter and extent results presented. Below is a discussion of the interpretation of these results in line with the objectives as well as the research question that the study sought to answer.

5.2.1 Tangibility and Patient Satisfaction

The first research question asked whether tangibility affect patient satisfaction among rural hospitals in Western Kenya. The results of a regression analysis returned results indicating tangibility among hospitals in the Western Kenya have a small positive but statistically significant effect on patient satisfaction with $\beta_2 = 0.172$ and $\rho = 0.01$. Drawing from these results, it is clear that this research provides enough evidence that tangibility has a strong and important effect on patient satisfaction among hospital in the Western Region. These findings are consistent with the conclusions of a research by Panda and Das (2014) where the authors found out that tangibility in its totality, and in particular; factors such as physical facilities, appearance and physical presentation have significant effects. Apart from Panda and Das (2014), these results are similarly consistent with the works of Nordin et al. (2017) and Aftab and Razzaq (2016) who equally provided evidence that tangibility as a dimension of service quality has an important effect on patient satisfaction. Nevertheless, the results of this study dispute the findings of Javed and Ilyas (2018) and A. Hussain, Sial, et al. (2019) whose results suggested that perhaps tangibility has no effect on patient satisfaction. Seemingly, these few divergent results should be re-examined or interpreted strictly as only applicable in the regions they were set-up.

5.2.2 Communication and Patient Satisfaction

The second research question asked whether communication affects patient satisfaction among rural hospitals in the Western Kenya. The results suggested that communication has a positive and statistically significant effect on patient satisfaction at a 99 percent level of confidence with $\beta_2 = 0.264, S.E = 0.047$and $\rho = 0.01$. From this results, it is clear that this research also provided adequate evidence that communication has a significant positive effect on patient satisfaction among hospitals in the Western Region. It is important to note that communication here is carefully defined as the readiness of hospital staff to offer assistance and accord quick service and involves swift exchange of information (Lee & Kim, 2017). Previous studies have provided often conflicting results with some such as Kitapci et al. (2014) and Aliman and Mohamad (2016) documenting a

totally unimportant or insignificant effect of finding that communication on patient satisfaction. However, the evidence provided by this study is consistent and in support of the findings by W. Wang et al. (2019), Panda and Das (2014), Burgener (2020) and such as Biglu et al. (2017) and Ward (2018) who all agree that communication in a hospital setting would impact patient satisfaction significantly and positively.

5.2.3 Empathy and Patient Satisfaction

The third research question looked at empathy and asked whether empathy affects patient satisfaction among rural hospitals in the Western Kenya. When empathy was regressed on patient satisfaction, the researcher discovered that of all the components of service quality, empathy appears to affect patient satisfaction most as its coefficient of $\beta_3 = 0.318, S.E = 0.045$ and $\rho = 0.01$ which is the highest of the four dimensions of service quality. These evidence indicate that empathy has a positive and very important effect on patient satisfaction among hospitals in the Western Kenya. These findings are consistent with the findings of researchers such as Wan et al. (2019), Menendez et al., (2015), H. Wang et al. (2018) Ye et al. (2019), Tucker and Adams (2001), Rad et al. (2010) and Zarei et al. (2012) among others; who similarly arrived at a conclusion of a positive and significant effect of empathy on patient satisfaction. However, the findings of this study appear to challenge the works of Meesala and Paul (2018) whose results found empathy not to be an important consideration toward patient satisfaction in a study implemented in India.

5.2.4 Turnaround Time and Patient Satisfaction

The last research question sought to examine whether turnaround time affects patient satisfaction among rural hospitals in the Western Kenya. When estimated in a regression model, it turns out that turnaround time has the lowest effect on patient satisfaction of all the components of service quality. The results show that the coefficient of turnaround time on patient satisfaction is $\beta_4 = 0.133, S.E = 0.047$with$\rho = 0.01$. Therefore, this study provided sufficient evidence indicating that turnaround time has a positive and significant effect on the patient satisfaction among hospitals in the Western Kenya.

While most people would easily agree that negative turnaround time such as long waiting time would influence a patient's satisfaction in a negative way, there existed very little evidence save for Bleustein et al. (2014) in support of this assertion. Therefore, this study provides another set of evidence for a positive significant effect which is a finding consistent with other researchers such as Alarcon-Ruiz et al. (2019) and Xie and Or (2017).

5.3 Conclusion

In general, this study provided adequate and conclusive evidence that service quality in its totality, and in particular; tangibility, communication, empathy and turnaround all have positive and significant effects on patient satisfaction among rural hospitals in the Western Kenya region. These findings receive an overwhelming support from previous works of other theoretical and empirical researchers in the field; and therefore, consistent with expectations and the SERVQUAL theory as explained in the Chapter two.

In conclusion, this study has answered all the research questions in affirmative by providing empirical evidence indicating that tangibility, communication, empathy and turnaround time all have positive and significant effects on patient satisfaction.

5.4 Recommendations

Based on the finding of positive effect of all components of service quality on patient satisfaction, the following are recommended for better patient satisfaction among hospitals in the rural parts of Western Kenya. Firstly, hospitals should invest more in visible and tangible assets such as modern medical equipment, medical machines, hospital furniture and hospital fittings that are needed to improve service to patients.

Secondly, hospitals should employ an adequate number of staff and these staff should be well trained on how they relate with patients in terms of efficient communication and being compassionate. A hospital may come up with education and training programmes aimed at equipping their staff with effective communication skills or employ external consultants to impart such skills. To avoid giving contradictory information, hospitals

should ensure that only designated personnel should be allowed to communicate to patients on specific issues. For instance, only doctors can explain what ails the patients while nurses can only communicate information about dosages and nursing matters.

Thirdly, hospitals' staff must be neat, well-groomed and clean. Perhaps wearing well maintained uniforms would help to achieve this. The uniforms should distinguish the cadre of the employee such that nurses, doctors and non-medical staff. The acceptable practice is for hospitals to provide the uniform rather than asking employees to buy on their own to ensure uniformity.

Fourthly, hospitals' buildings must look modern and neat. Hospitals should consider painting the buildings and maintaining high levels of cleanliness. There are some colours that are always associated with medical facilities while some are not; and therefore, the choice of colours, logos and hospital brands and colour themes must be done carefully to avoid confusing the patients.

Fifthly, hospitals' staff must be trained on how to effectively communicate with the patients to ensure that satisfactory information is given to patients and they have understood the information being passed to them. Effective communication alone is not enough; there should be empathy and a genuine desire to assist.

On turnaround time, the hospital should ensure that services are prompt, queues are well managed, no unnecessary delays and where there is a delay, there should be a staff ready to offer an explanation and show genuine interest to help. In case delays are occasioned by lack of adequate knowledge on the side of an employee to executive a certain chore, the hospital management should encourage continuous medical education (CME) to be conducted within the hospital.

5.5 Recommendation for Further Studies

This research provides adequate and conclusive evidence on the effects of tangibility, communication, empathy and turnaround time on patient satisfaction in the Western Region. Western region is a unique area but still very much representative of the rural Africa. As such, the above recommendations can be applied or generalized for any rural

area in Africa. However, for a better understanding of the constructs of service quality and patient satisfaction, the following areas can be explored by future researches:

Firstly, each aspect of service quality studied here can be explored separately and in more depth thereby allowing decomposing each component of service quality further and deriving a deeper understanding. Secondly, other factors that affect patient satisfaction that account for the remaining unexplained variance in patient satisfaction can be explored and be included in the future models so as to have a complete and comprehensive understanding of all factors that drives patient satisfaction. lastly, while regression analysis is very powerful in understanding the nature and direction of a causal relationship, future studies in the rural Africa can consider estimating a structural economic model (SEM), path analysis and objective time series, among others

Reference

Aftab, J., & Razzaq, M. (2016). Service quality in public and private hospitals in Pakistan: An analysis using SERVQUAL model. *Apeejay-Journal of Management Sciences and Technology*.

Afulani, P. A., Ogolla, B. A., Oboke, E. N., Ongeri, L., Weiss, S. J., Lyndon, A., & Mendes, W. B. (2021). Understanding disparities in person-centred maternity care: the potential role of provider implicit and explicit bias. *Health Policy and Planning, 36*(3), 298-311.

Al-Damen, R. (2017). Health care service quality and its impact on patient satisfaction "case of Al-Bashir Hospital".

Alarcon-Ruiz, C. A., Heredia, P., & Taype-Rondan, A. (2019). Association of waiting and consultation time with patient satisfaction: secondary-data analysis of a national survey in Peruvian ambulatory care facilities. *BMC health services research, 19*(1), 439.

Aliman, N. K., & Mohamad, W. N. (2016). Linking service quality, patients' satisfaction and behavioral intentions: an investigation on private healthcare in Malaysia. *Procedia-Social and Behavioral Sciences, 224*, 141-148.

Banek, K., Lalani, M., Staedke, S. G., & Chandramohan, D. (2014). Adherence to artemisinin-based combination therapy for the treatment of malaria: a systematic review of the evidence. *Malaria journal, 13*(1), 1-14.

Basias, N., & Pollalis, Y. (2018). Quantitative and qualitative research in business & technology: Justifying a suitable research methodology. *Review of Integrative Business and Economics Research, 7*, 91-105.

Bernal, O. A., McClintock, H. F., Kurichi, J. E., Kwong, P. L., Xie, D., Streim, J. E., . . . Bogner, H. R. (2019). Patient satisfaction and perceived quality of care among younger Medicare beneficiaries according to activity limitation stages. *Archives of physical medicine and rehabilitation, 100*(2), 289-299.

Bhattacherjee, A. (2012). Social science research: Principles, methods, and practices.

Biglu, M.-H., Nateq, F., Ghojazadeh, M., & Asgharzadeh, A. (2017). Communication skills of physicians and patients' satisfaction. *Materia socio-medica, 29*(3), 192.

Bleustein, C., Rothschild, D. B., Valen, A., Valatis, E., Schweitzer, L., & Jones, R. (2014). Wait times, patient satisfaction scores, and the perception of care. *The American journal of managed care, 20*(5), 393-400.

Borghi, L., Leone, D., Poli, S., Becattini, C., Chelo, E., Costa, M., . . . Giuffrida, G. (2019). Patient-centered communication, patient satisfaction, and retention in care in assisted reproductive technology visits. *Journal of assisted reproduction and genetics, 36*(6), 1135-1142.

Burgener, A. M. (2020). Enhancing communication to improve patient safety and to increase patient satisfaction. *The health care manager, 39*(3), 128-132.

Butt, M. M., & de Run, E. C. (2010). Private healthcare quality: applying a SERVQUAL model. *International journal of health care quality assurance*.

Cape, J. (2002). Consultation length, patient-estimated consultation length, and satisfaction with the consultation. *Br J Gen Pract, 52*(485), 1004-1006.

Chandra, S., Ward, P., & Mohammadnezhad, M. (2019). Factors associated with patient satisfaction in outpatient department of suva sub-divisional health center, fiji, 2018: a mixed method study. *Frontiers in public health, 7*, 183.

Charan, J., & Biswas, T. (2013). How to calculate sample size for different study designs in medical research? *Indian journal of psychological medicine, 35*(2), 121.

Craig-Schapiro, R., DiBrito, S. R., Overton, H. N., Taylor, J. P., Fransman, R. B., Haut, E. R., & Sacks, B. C. (2018). Meet your surgical team: The impact of a resident-led quality improvement project on patient satisfaction. *The American Journal of Surgery, 216*(4), 793-799.

Das, P. (2019). *Econometrics in Theory and Practice*: Springer.

Davras, Ö., & Caber, M. (2019). Analysis of hotel services by their symmetric and asymmetric effects on overall customer satisfaction: A comparison of market segments. *International Journal of Hospitality Management, 81*, 83-93. doi: https://doi.org/10.1016/j.ijhm.2019.03.003

Dominic, P. D., Goh, K. N., Wong, D., & Chen, Y. Y. (2010). The importance of service quality for competitive advantage \– with special reference to industrial product. *Int. J. Bus. Inf. Syst., 6*(3), 378-397. doi: 10.1504/ijbis.2010.035051

Drost, E. A. (2017). Validity and reliability in social science research. *Education Research and perspectives, 38*(1), 105.

Fox, J. G., & Storms, D. M. (1981). A different approach to sociodemographic predictors of satisfaction with health care. *Social Science & Medicine. Part A: Medical Psychology & Medical Sociology, 15*(5), 557-564.

Getui, M. N., Aluku, N. C., & Story, W. T. (2019). Religious Collaboration Enhances Patient Satisfaction among Faith-Based Groups and Health Facilities in Western Kenya. *Journal for the Study of the Religions of Africa and its Diaspora, 5*, 35-49.

Golafshani, N. (2016). Understanding reliability and validity in qualitative research. *The qualitative report, 8*(4), 597-607.

Grönroos, C. (1982). An applied service marketing theory. *European journal of marketing*.

Hapsari, R., Clemes, M., & Dean, D. (2016). The mediating role of perceived value on the relationship between service quality and customer satisfaction: Evidence from Indonesian airline passengers. *Procedia Economics and Finance, 35*, 388-395.

Haywood-Farmer, J. (1988). A conceptual model of service quality. *International journal of operations & production management*.

Hill, J., Hoyt, J., Achieng, F., Ouma, P., L'lanziva, A., Kariuki, S., . . . Webster, J. (2016). User and provider acceptability of intermittent screening and treatment and intermittent preventive treatment with Dihydroartemisinin-Piperaquine to prevent malaria in pregnancy in Western Kenya. *PLoS One, 11*(3), e0150259.

Hirata, E. (2019). Service characteristics and customer satisfaction in the container liner shipping industry. *The Asian Journal of Shipping and Logistics, 35*(1), 24-29.

Holmen, I. C., Niyokwizerwa, D., Nyiranzayisaba, B., Singer, T., & Safdar, N. (2017). Challenges to sustainability of hand hygiene at a rural hospital in Rwanda. *American journal of infection control, 45*(8), 855-859.

Hussain, A., Asif, M., Jameel, A., & Hwang, J. (2019). Measuring OPD patient satisfaction with different service delivery aspects at public hospitals in Pakistan. *International journal of environmental research and public health, 16*(13), 2340.

Hussain, A., Sial, M. S., Usman, S. M., Hwang, J., Jiang, Y., & Shafiq, A. (2019). What factors affect patient satisfaction in public sector hospitals: Evidence from an emerging economy. *International journal of environmental research and public health, 16*(6), 994.

Hussain, R., Al Nasser, A., & Hussain, Y. K. (2015). Service quality and customer satisfaction of a UAE-based airline: An empirical investigation. *Journal of Air Transport Management, 42*, 167-175.

Javed, S. A., & Ilyas, F. (2018). Service quality and satisfaction in healthcare sector of Pakistan—the patients' expectations. *International Journal of Health Care Quality Assurance, Vol. 31* (6), 489-501.

Javed, S. A., Liu, S., Mahmoudi, A., & Nawaz, M. (2019). Patients' satisfaction and public and private sectors' health care service quality in Pakistan: Application of grey decision analysis approaches. *The International journal of health planning and management, 34*(1), e168-e182.

Kaufman, B. G., Thomas, S. R., Randolph, R. K., Perry, J. R., Thompson, K. W., Holmes, G. M., & Pink, G. H. (2016). The rising rate of rural hospital closures. *The Journal of Rural Health, 32*(1), 35-43.

Kitapci, O., Akdogan, C., & Dortyol, I. T. (2014). The impact of service quality dimensions on patient satisfaction, repurchase intentions and word-of-mouth communication in the public healthcare industry. *Procedia-Social and Behavioral Sciences, 148*, 161-169.

KNBS. (2019). 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County.

Kumar, A., Luthra, S., Khandelwal, D. K., Mehta, R., Chaudhary, N., & Bhatia, S. (2017). Measuring and improving customer retention at authorised automobile workshops after free services. *Journal of Retailing and Consumer Services, 39*, 93-102. doi: https://doi.org/10.1016/j.jretconser.2017.07.007

Latiff, D. S., Din, S. C., & Ma'on, S. N. (2013). Patient satisfaction with access to 1Malaysia clinic. *Procedia-Social and Behavioral Sciences, 91*, 395-402.

Lee, S., & Kim, E.-K. (2017). The effects of Korean medical service quality and satisfaction on revisit intention of the United Arab Emirates government sponsored patients. *Asian nursing research, 11*(2), 142-149.

Lewis, M. A., Lewis, C. E., Leake, B., King, B. H., & Lindemanne, R. (2016). The quality of health care for adults with developmental disabilities. *Public health reports, 117*(March - April).

Lin, C.-C., Wu, H.-Y., & Chang, Y.-F. (2011). The critical factors impact on online customer satisfaction. *Procedia Computer Science, 3*, 276-281.

Lucadamo, A., Camminatiello, I., & D'Ambra, A. (2020). A statistical model for evaluating the patient satisfaction. *Socio-Economic Planning Sciences*, 100797.

Martinović, M., Pavlić, I., & Šuman Tolić, M. (2017). MEASUREMENT OF LOCAL PUBLIC SERVICES'QUALITY USING SERVQUAL: THE CASE OF DUBROVNIK. *Ekonomska misao i praksa*(2), 593-610.

Meesala, A., & Paul, J. (2018). Service quality, consumer satisfaction and loyalty in hospitals: Thinking for the future. *Journal of Retailing and Consumer Services, 40*, 261-269. doi: https://doi.org/10.1016/j.jretconser.2016.10.011

Menendez, M. E., Chen, N. C., Mudgal, C. S., Jupiter, J. B., & Ring, D. (2015). Physician Empathy as a Driver of Hand Surgery Patient Satisfaction. *The Journal of Hand Surgery, 40*(9), 1860-1865.e1862. doi: https://doi.org/10.1016/j.jhsa.2015.06.105

Moyimane, M. B., Matlala, S. F., & Kekana, M. P. (2017). Experiences of nurses on the critical shortage of medical equipment at a rural district hospital in South Africa: a qualitative study. *Pan African Medical Journal, 28*(1), 157.

NCPD. (2019). Kenya Health Service Delivery Indicator Survey 2018 Report. In G. a. GEDDR (Ed.), (Vol. May 2019).

NegiS, K. H., & Singh, G. (2017). Quality of nurse patient therapeutic communication and overall patient satisfaction duringtheir hospitalization stay. *Int J Med Sci Public Health. Swami Rama Himalayan University, Uttarakhand*.

Nordin, J., Yusuf, N. A., & Zakaria, Z. (2017). *1Malaysia Clinic Service Quality and Patient Satisfaction Case Study: 1Malaysia Clinic Taman Samarindah Kota Samarahan.* Paper presented at the The 6th International Conference on Public Policy and Social Science.

Odhiambo, G. O., Musuva, R. M., Odiere, M. R., & Mwinzi, P. N. (2016). Experiences and perspectives of community health workers from implementing treatment for schistosomiasis using the community directed intervention strategy in an informal settlement in Kisumu City, western Kenya. *BMC Public Health, 16*(1), 1-12.

Ogunnowo, B. E., Olufunlayo, T. F., & Sule, S. S. (2015). Client perception of service quality at the outpatient clinics of a general hospital in Lagos, Nigeria. *Pan African Medical Journal, 22*(1).

Panda, T. K., & Das, S. (2014). The role of tangibility in service quality and its impact on external customer satisfaction: A comparative study of hospital and hospitality sectors. *IUP Journal of Marketing Management, 13*(4), 53.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of marketing, 49*(4), 41-50.

Quaschning, K., Körner, M., & Wirtz, M. (2013). Analyzing the effects of shared decision-making, empathy and team interaction on patient satisfaction and treatment acceptance in medical rehabilitation using a structural equation modeling approach. *Patient education and counseling, 91*(2), 167-175.

Rad, N. F., Som, A. P. M., & Zainuddin, Y. (2010). Service quality and patients' satisfaction in medical tourism. *World Applied Sciences Journal, 10*(1), 24-30.

Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences, 6*(2), 1-5.

Rizany, I., Setiawan, H., & Musafaah, M. (2021). The Relationship between Waiting Time and Patient Satisfaction in The Outpatient of Public Hospital in Banjarbaru. *IJNP (Indonesian Journal of Nursing Practices), 5*(1), 60-66.

Saleh, F., & Ryan, C. (1991). Analysing service quality in the hospitality industry using the SERVQUAL model. *Service Industries Journal, 11*(3), 324-345.

Segoro, W. (2013). The influence of perceived service quality, mooring factor, and relationship quality on customer satisfaction and loyalty. *Procedia-Social and Behavioral Sciences, 81*, 306-310.

Shirazi, H., Kia, R., & Ghasemi, P. (2020). Ranking of hospitals in the case of COVID-19 outbreak: A new integrated approach using patient satisfaction criteria. *International Journal of Healthcare Management*, 1-13.

Shuford, K., Were, F., Awino, N., Samuels, A., Ouma, P., Kariuki, S., . . . Allen, D. R. (2016). Community perceptions of mass screening and treatment for malaria in Siaya County, western Kenya. *Malaria journal, 15*(1), 1-13.

Singh, A., Pradhan, S., Ravi, P., & Dhale, S. (2020). Application of six sigma and 5 S to improve medication turnaround time. *International Journal of Healthcare Management*, 1-9.

Sousa, V. D., Driessnack, M., & Mendes, I. A. C. (2017). An overview of research designs relevant to nursing: Part 1: quantitative research designs. *Revista latino-americana de enfermagem, 15*(3), 502-507.

Subramanian, N., Gunasekaran, A., Yu, J., Cheng, J., & Ning, K. (2014). Customer satisfaction and competitiveness in the Chinese E-retailing: Structural equation modeling (SEM) approach to identify the role of quality factors. *Expert Systems with Applications, 41*(1), 69-80. doi: https://doi.org/10.1016/j.eswa.2013.07.012

Sundaram, N., Schaetti, C., Merten, S., Schindler, C., Ali, S. M., Nyambedha, E. O., . . . Weiss, M. G. (2015). Sociocultural determinants of anticipated oral cholera vaccine acceptance in three African settings: a meta-analytic approach. *BMC Public Health, 16*(1), 1-11.

Sydorov, M., Salnikova, S., Savelyev, Y., & Oliinyk, O. (2020). Modified SERVPERF and Normalized SERVQUAL Models in Estimation of Service Quality in Higher Educational Institutes. *Sociological studios*(1 (16)), 29-39.

Talisuna, A. O., Oburu, A., Githinji, S., Malinga, J., Amboko, B., Bejon, P., . . . Zurovac, D. (2017). Efficacy of text-message reminders on paediatric malaria treatment adherence and their post-treatment return to health facilities in Kenya: a randomized controlled trial. *Malaria journal, 16*(1), 1-11.

Tarus, T. K., Mangeni, J. N., Nyariki, J. C., & Simiyu, K. N. (2014). Assessment of patient satisfaction with nursing care at a large public referral hospital in Kenya.

Thi, P. L. N., Briancon, S., Empereur, F., & Guillemin, F. (2002). Factors determining inpatient satisfaction with care. *Social science & medicine, 54*(4), 493-504.

Thornhill, A., Saunders, M., & Lewis, P. (2019). Research methods for business students. *Essex: Pearson Education Ltd*.

Topp, S. M., & Chipukuma, J. M. (2016). A qualitative study of the role of workplace and interpersonal trust in shaping service quality and responsiveness in Zambian primary health centres. *Health policy and planning, 31*(2), 192-204.

Tripathi, S. N., & Siddiqui, M. H. (2018). Assessing the quality of healthcare services: A SERVQUAL approach. *International Journal of Healthcare Management*.

Tucker, J. L., & Adams, S. R. (2001). Incorporating patients' assessments of satisfaction and quality: an integrative model of patients' evaluations of their care. *Managing Service Quality: An International Journal, 11*(4), 272-287.

Vedanthan, R., Tuikong, N., Kofler, C., Blank, E., Kamano, J. H., Naanyu, V., . . . Fuster, V. (2016). Barriers and facilitators to nurse management of hypertension: A qualitative analysis from western Kenya. *Ethnicity & Disease, 26*(3), 315.

Walsh, S., O'Neill, A., Hannigan, A., & Harmon, D. (2019). Patient-rated physician empathy and patient satisfaction during pain clinic consultations. *Irish Journal of Medical Science (1971-), 188*(4), 1379-1384.

Wan, Q., Jiang, L., Zeng, Y., & Wu, X. (2019). A big-five personality model-based study of empathy behaviors in clinical nurses. *Nurse Education in Practice, 38*, 66-71. doi: https://doi.org/10.1016/j.nepr.2019.06.005

Wang, H., Kline, J. A., Jackson, B. E., Laureano-Phillips, J., Robinson, R. D., Cowden, C. D., . . . Zenarosa, N. R. (2018). Association between emergency physician self-reported empathy and patient satisfaction. *PloS one, 13*(9), e0204113.

Wang, W., Maitland, E., Nicholas, S., & Haggerty, J. (2019). Determinants of overall satisfaction with public clinics in rural China: Interpersonal care quality and treatment outcome. *International journal of environmental research and public health, 16*(5), 697.

Wangenheim, F. V., & Bayón, T. (2007). The chain from customer satisfaction via word-of-mouth referrals to new customer acquisition. *Journal of the Academy of Marketing Science, 35*(2), 233-249.

Ward, P. (2018). Trust and communication in a doctor-patient relationship: a literature review. *Arch Med, 3*(3), 36.

Watsierah, C. A., & Ouma, C. (2014). Access to artemisinin-based combination therapy (ACT) and quinine in malaria holoendemic regions of western Kenya. *Malaria journal, 13*(1), 1-7.

WHO. (2019). Key components of a well functioning health system. *Ginebra: World Health Organization*.

Wishner, J., Solleveld, P., Rudowitz, R., Paradise, J., & Antonisse, L. (2016). A look at rural hospital closures and implications for access to care: three case studies. *Kaiser Family Foundation*(July 2016).

Woodruff, R. B. (1997). Customer value: the next source for competitive advantage. *Journal of the Academy of Marketing Science, 25*(2), 139.

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: The Journal of Health Care Organization, Provision, and Financing, 54*, 0046958017739527.

Ye, Y., Ma, D., Yuan, H., Chen, L., Wang, G., Shi, J., . . . Jiang, X. (2019). Moderating Effects of Forgiveness on Relationship Between Empathy and Health-Related Quality of Life in Hemodialysis Patients: A Structural Equation Modeling Approach. *Journal of Pain and Symptom Management, 57*(2), 224-232. doi: https://doi.org/10.1016/j.jpainsymman.2018.10.511

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European journal of education, 48*(2), 311-325.

Zarei, A., Arab, M., Froushani, A. R., Rashidian, A., & Tabatabaei, S. M. G. (2012). Service quality of private hospitals: The Iranian Patients' perspective. *BMC health services research, 12*(1), 31.

Zeithaml, V., Berry, L., & Anantharanthan, P. (1988). Communication and control processes in the delivery of service quality. *Journal of marketing, 52*(2), 35-48.

Zhou, K. Z., Brown, J. R., & Dev, C. S. (2009). Market orientation, competitive advantage, and performance: A demand-based perspective. *Journal of business research, 62*(11), 1063-1070.

APPENDICES

APPENDIX 1: LETTER OF INTRODUCTION

Dear Respondent,

I am a graduate student in the School of Business, Strathmore University in Nairobi. As part of the requirements for the award of a Masters' degree in Business Administration, I am carrying out a research on the ***Effects of Service Quality on Patient Satisfaction among Rural Hospitals in Western Kenya: A Case of Kory Family Hospitals.*** For this purpose, I would like to request that you participate in my study by answering a number of questions below which shall take less than five minutes of your time. Please understand that your identification is not needed; you will remain anonymous, and all information provided will treated as confidential and shall only be used for academic purposes. In case you need to verify, clarify or add the information you have given please feel free to use this cell-phone number 0723 797 750

Yours Sincerely,

Susan Murumba

APPENDIX 2: QUESTIONNAIRE

General Instructions

a) For each question, pick the appropriate answer by checking the box next to a response you feel is the most appropriate.
b) Check the box by using a tick "√" or any other marking
c) Make a single response per question

SECTION A: BIO-DATA

1. What is your gender

□ Male □ Female

2. What is your age?

□ 18 – 23 □ 24 – 29 □ 30 – 35 □ 36 – 41 □ 42 – 47 □> 48

3. Are you a resident of Bungoma?

□ Yes □ No

4. Where do you reside?

□ Within an urban municipality area □ in the rural area

5. How many times have you been treated in a Kory Family Hospital branch?

□ This is my first time □ I have been treated in Kory Family Hospital before

SECTION B: TANGIBILITY (PHYSICAL FACILITIES)

In this section the study is interested in your views on staff and equipment of the hospital. Kindly read each question and indicate your most appropriate response by checking the respective box that corresponds to your chosen response. The categories are scale of 1-5 where: 5-Strongly Agree, 4- Agree, 3-Neutral, 2-Disagree, 1- Strongly Disagree

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
6.	Hospital rooms and beds are neat and in good condition					

7.	Hospital facilities are appealing and generally clean					
8.	Hospital staff demeanor is professional					
9.	The hospital has modern equipment and tools					
10	Hospital staff appear neat					

SECTION C: COMMUNICATION

In this section the study is interested in your views on how you communicated with hospital staff and how effective was the communication process. Kindly read each question and indicate your most appropriate response by checking the respective box that corresponds to your chosen response. The categories are scale of 1-5 where: 5- Strongly Agree, 4- Agree, 3-Neutral, 2-Disagree, 1- Strongly Disagree

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
11	Hospital staff listened and understood me well					
12	Staff do not provide contradictory information					
13	I have received satisfactory information on the disease					
14	I received satisfactory information on hospital processes and schedules					
15	I have received adequate information about therapies and investigations					

SECTION D: EMPATHY

In this section the study is interested in your views on how empathetic hospital staff were. Kindly read each question and indicate your most appropriate response by

checking the respective box that corresponds to your chosen response. The categories are scale of 1-5 where: 5-Strongly Agree, 4- Agree, 3-Neutral, 2-Disagree, 1- Strongly Disagree

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
16	The staff gave me adequate time for me to explain my problem					
17	The staff gave individual attention to me					
18	The staff communicated with me by using an understandable language					
19	The staff treated me fairly					
20	The staff provided convenient operating hours that suited my needs					

SECTION E: TURNAROUND TIME

In this section the study is interested in your views on the time used to be served at every point and in totality. Kindly read each question and indicate your most appropriate response by checking the respective box that corresponds to your chosen response. The categories are scale of 1-5 where: 5-Strongly Agree, 4- Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
21	The service was generally prompt					
22	I think I did not wait in the queue more than necessary					
23	The results for tests and investigation were not delayed unnecessarily					
24	When there was a delay, staff					

	explained or apologized					
25	The staff showed a sincere interest to solving my problems on time					

SECTION F: PATIENT SATISFACTION

In this section the study is interested in gauging the extend of satisfaction with the hospital service. Kindly read each question and indicate your most appropriate response by checking the respective box that corresponds to your chosen response. The categories are scale of 1-5 where: 5-Strongly Agree, 4- Agree, 3-Neutral, 2-Disagree, 1- Strongly Disagree

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	I cooperated with the hospital staff at all times					
2.	I plan to adhere to the medical instructions strictly					
3.	The treatment plan was acceptable to me					
4.	I shall encourage more people to come to this hospital					
5.	I shall come back here for treatment in future when I need it again					

THANK YOU

APPENDIX 3: ETHICAL APPROVAL

Strathmore UNIVERSITY

15th January 2021

Dr Murunga, Susan
susan.murunga@strathmore.edu

Dear Dr Murunga,

RE: Effects of Service Quality on Patient Satisfaction among Rural Hospitals in Western Kenya: A Case of Kory Family Hospitals in the County of Bungoma

This is to inform you that SU-IERC has reviewed and **approved** your above research proposal. Your application reference number is **SU-IERC0916/20.** The approval period is **15th January 2021 to 14th January 2022.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 48 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 48 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

for Dr Virginia Gichuru,
Secretary; SU-IERC

Cc: Prof Fred Were,
Chairperson; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
15 JAN 2021
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

APPENDIX 4: NACOSTI PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **804716**

Date of Issue: **19/January/2021**

RESEARCH LICENSE

This is to Certify that Dr.. Susan Murunga Murumba of Strathmore University, has been licensed to conduct research in Bungoma on the topic: Effects of Service Quality on Patient Satisfaction among Rural Hospitals in Western Kenya: A Case of Kory Family Hospitals in the County of Bungoma for the period ending : 19/January/2022.

License No: **NACOSTI/P/21/8611**

804716

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is Guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period
2. The License any rights thereunder are non-transferable
3. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research
4. Excavation, filming and collection of specimens are subject to further necessary clearence from relevant Government Agencies
5. The License does not give authority to tranfer research materials
6. NACOSTI may monitor and evaluate the licensed research project
7. The Licensee shall submit one hard copy and upload a soft copy of their final report (thesis) within one year of completion of the research
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice

National Commission for Science, Technology and Innovation
off Waiyaki Way, Upper Kabete,
P. O. Box 30623, 00100 Nairobi, KENYA
Land line: 020 4007000, 020 2241349, 020 3310571, 020 8001077
Mobile: 0713 788 787 / 0735 404 245
E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
Website: www.nacosti.go.ke