UNIVERSITY OF NAIROBI

SCHOOL OF MATHEMATICS

USING STRUCTURAL EQUATION MODELLING TO EVALUATE THE CUSTOMER'S TRUST AND LOAYALTY IN AKUH, N

Submitted by;

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I56/64234/2010

A research project submitted in partial fulfilment of the requirement of Master of Science in Social Statistics degree, School of Mathematics, Chiromo Campus, College of Biological and Physical Science, University of Nairobi.

June 2012

Declaration

This research project report is my original work and has not been presented for a degree or otherwise in any other university, college or institution for academic or any other purpose to the best of my knowledge.

This paper has been submitted for examination by

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Signature_____

Date 19th July 2012

Submitted to: **Mrs. Anne Wang'ombe**

This management project report has been submitted for examination with my approval as university supervisor

Signature _____

Date 23-07-2012

Dedication

To all my friends and workmates, college colleagues, teachers and family with love.

You all, in one way or another made me believe I could make it.

Acknowledgements

I am heavily indebted to many people in writing this work. I want to take first of all this opportunity to sincerely appraise God for gift of life and determination to help carry on with this study. Special thanks to my university supervisor Mrs. Anne Wang'ombe for her precious time and advice she gave me from the preparation of the proposal to this final report. I also pass my gratitude to all my lecturers and the university at large for the attention and resources they gave me to see me through this course. Not forgetting to pass regards to all my classmates for the comfort and companion all along the academic road. More-over, I wish to thank the administration of Aga khan University Hospital, Nairobi for giving me an opportunity to participate in this study. Sincere appreciation goes to my wife, my entire family and all my associates for their encouragement and honourable support throughout my studies.

Abstract:
Measurement of customer satisfaction in behavioural health services has received increasing emphasis due to clinicians' and researchers' desire to measure outcomes that reflect the patient's unique perspective. The healthcare service is a high credence service. Not only patient satisfaction but also patient (emotional) trust with healthcare service providers is regarded as important to the patients. Moreover, the ultimate aim of every patient is to have his/her disease cured or have their health improved or feel more comfortable after treatment. Any satisfying strategy from healthcare service providers without achieving these purposes is meaningless. These parameters differentiate the model in healthcare service from other services in general. This research studied the role of patient loyalty in the relationship between patient satisfaction and trust. It also examined the factors affecting patient loyalty and patient trust.

The researcher used a descriptive research design since this type of research attempts to describe such things as possible behaviour, attitudes, values and characteristics (Mugenda et al, 2003). In this design, data is collected in order to test hypothesis or answer questions concerning the current status of the subject in study. Cluster sampling was used to obtain the respondents in which a sample size of 251 representing 89% response rate was achieved. Confirmatory Factor Analysis and the Structural Equation Model were used to analyse the casual relationships between service quality, customer trust, customer satisfaction, and customer loyalty. Based on the theoretical model, a comprehensive set of hypotheses were formulated and a methodology for testing them outlined. These hypotheses were tested empirically to demonstrate the applicability of the theoretical model. The endogenous variables formed by the exogenous variables have shown strong direct and indirect relationship to the response variable. Amongst all, customer satisfaction has shown considerable impact on loyalty directly and indirectly as an intervening variable. The perception of quality of service garnered 96.3%, customer satisfaction was 90.8%, and trust was ranked 92.7% while loyalty was ranked as 88.7%. The study shows that Customer satisfaction explains so much variation on customer loyalty unlike quality of service to loyalty. The entire posited hypotheses have been supported within the stated criterion.

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List of Acronyms

AKUHN	Aga Khan University Hospital Nairobi
AMOS	Analysis of Moment of Structures
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
DV	Dependent Variable
GFI	Goodness of Fit Index
IV	Independent Variable
PASW	Predictive Analysis Software
RMSEA	Root Mean Square Error of Estimation
SEM	Structural Equations Modelling
SERVQUAL	Service Quality
SMC	Squared Multiple Correlations
VIF	Variance Inflation Factors

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents the necessary background information of the study and reviews the current structure of the Aga Khan University Hospital, Nairobi as a premier tertiary and referral institution.

1.1 Background

The good medical quality could improve customers and hospital staff member's satisfaction, increased customer loyalty to the hospital, and encourages customers to return to the hospital and accept the possibility in medical treatment. The healthcare industry is highly competitive as it has opened to the private sector (Hasin, Seeluangsawat, and Shareef, 2001). At present, the competition is even more intense which has forced private hospitals to compete with each other to gain as much market share as possible. As a result, many private hospitals are emphasizing more on marketing to compete for an increased market share.

Retaining customers is of financial imperative for healthcare facility, especially as attracting new customers are considerably more expensive than for comparable, traditional, bricks-and-mortar stores (Reichheld and Schefter, 2000). Understanding how or why a sense of loyalty develops in customers remains one of the crucial management issues of our day. Aaker (1991) has discussed the role of loyalty in the brand equity process and has specifically noted that brand loyalty leads to certain marketing advantages such as reduced marketing costs, more new customers, and greater trade leverage. In increasingly competitive markets, being able to build loyalty in consumers is seen as the key factor in winning market share (Jarvis and Mayo, 1986) and developing sustainable competitive advantage (Kotler and Singh, 1981). While the importance of brand loyalty has been recognized in the marketing literature for at least three decades (Howard and Sheth, 1969), the conceptualization and empirical validation of a loyalty model for healthcare context has not been addressed. The success, especially in the business-to-consumer area, is determined in part by whether consumers show loyalty to a particular healthcare service provider. Thus, research attention should more fruitfully focus on the development and validation of a loyalty model for healthcare service context.

Corporate image, customer satisfaction, and customer loyalty may help service companies to compete in this highly competitive environment. As corporate image will play an increasingly important role in this environment of increasing competition and identical service offerings by attracting and retaining customers (Andreassen and Lindestad, 1998). In addition, customer satisfaction is considered by healthcare providers as a key component of strategy and a significant determinant of long term viability and success under competitive situation (Andaleep, 1998). Moreover, maintaining and expanding customer loyalty is significant for any service company's long term success (Kandampully, 1998).

The delivery of consistently superior service quality has become a very important prerequisite for many companies success (Parasuraman, Zeithaml, and Berry, 1988) because it affects corporate image (Nguyen and LeBlanc, 1998), customer satisfaction (Lee, Lee and Yoo 2000), and customer loyalty (Bloemer, Ruyter, and Wetzels, 1999). Accordingly, the improvement of perceived service quality will enhance corporate image, customer satisfaction, and customer loyalty. As a result, the company can effectively compete and succeed in an increasingly competitive environment.

Trust is seen by many authors across disciplines as a basis for successful human interaction. In the business context authors view trust as lubricant or key enabler for cooperation. Trust has been shown to facilitate efficient business transactions (Williamson 1988; Williamson 1993; Noteboom 1996, p.989) and increase customer satisfaction (Dwyer, Schurr et al. 1987; Ganesan 1994; Morgan and Hunt 1994; Doneyand Cannon 1997; Geyskens, Steenkamp et al. 1999). Trust also helps organizations reduce the risks associated with opportunism in exchange relationships (Morgan and Hunt 1994; Pavlou 2002). More generally, trust promotes cooperative behavior within organizations and between organizational stakeholder groups such as clients (Hennart1988; Morgan and Hunt 1994; Noteboom 1996; Parkhe 1998; Lewis 1999; Brower,Schoorman et al. 2000; Child 2001; Chami and Fullenkamp 2002; Boersma, Buckley etal. 2003); as such, trust can also serve as a source of competitive advantage for the organization (Barney and Hansen 1994).

Recognizing that a vital key to retaining customers is maintaining their trust in the healthcare industry (Reichheld and Schefter, 2000), this study investigates customer trust as a primary factor for customer loyalty. In addition, our study incorporates customer satisfaction and customer trust as additional explanatory variables in understanding the determinants of why customers show behavioural purchase loyalty to a specific healthcare service provider. Accordingly, the primary purpose of this study is to explore the factors (i.e., quality service, customer satisfaction, trust) that influence purchase loyalty.

1.2 Aga Khan University Hospital, Nairobi

Standing on 10 acres of land, The Aga Khan Platinum Jubilee Hospital was built with funds raised by the Ismaili community, together with a contribution from the Kenya government, to commemorate the 70thanniversary of the installation of His Highness Sir Sultan Mohammed Shah as the Shia Imami Ismaili community. The planning began in 1952 and formally opened on 8thSeptember 1958 by His Highness.

One of the objectives in building the hospital was, initially, for the teaching and training of nurses, with a long term policy of participating in medical training (ongoing). The AKUH,N with an ISO 9001:2000 certificate and currently pursuing the JCIA certificate, is one of the most comprehensive hospitals with specialists in every field of medicine.

The Aga Khan University (AKU) is an important part of The Aga Khan Development Network (AKDN), a group of private, non-denominational development agencies and institutions working together to improve living conditions and opportunities in over 20 of the poorest countries in the developing world. The hospital, as part of not-for –profit international health network, is making continuous dramatic advancements in improving the health care of the communities it serves. Patient care remains at the core of the hospital's history. This information is from company records and the website www.aku.edu/akuhn. The following words, Quality/ Impact/ Relevance/ Access form the top page of the corporate newsletter.

1.3 Statement of the problem

Quality of service leads to patient satisfaction which results into patient developing trust and loyalty for healthcare provider. Loyalty is an emotional relationship between the customers and the company. Therefore, loyalty is measured by the customer relationship strength. The metrics can be defined as

i. Customers' commitment to increase their relationship with the company. For instance, the customers use the company's products and services for all their needs, or

ii. Customers are willing to spread positive word-of-mouth publicity about the company's product and services.

It should be noticed that retention is not necessarily loyalty. As a result, metrics used to measure retention like RFM (recency of purchase, frequency of purchase, and monetary value of what is bought), or number of years as a customer may not represent customer loyalty.

The customer trust in the literature is defined in the following two meanings:

i. "as existing when one party has confidence in the exchange partner's reliability and integrity" (Morgan and Hunt, 1994, p. 23). It means that trust is considered as a belief or expectation about a service provider's expertise or reliability [4] (Anderson and Weitz, 1990), [5] (Schurr and Ozanne, 1985).

ii. as the customers' expectations that the company "can be relied on to deliver on its promises" (Sirdeshmukh et al., 2002). Hence, trust is considered as a reliance on a service provider when the relationship between them involves vulnerability and uncertainty (Ganesan, 1994; Moorman et al., 1993). Fishbein and Ajzen's (1975) theory of reasoned action suggests that trust is belief and it precedes other behavior like loyalty.

Not only patient satisfaction but also patient trust with healthcare service providers is regarded as important to the patients. Moreover, the ultimate aim of every patient is to have his/her disease cured or have their health improved or feel more comfortable after treatment. Any satisfying strategy from healthcare service providers without achieving these purposes is meaningless. These points differentiate the model in healthcare service from other services in general.

1.4Objectives

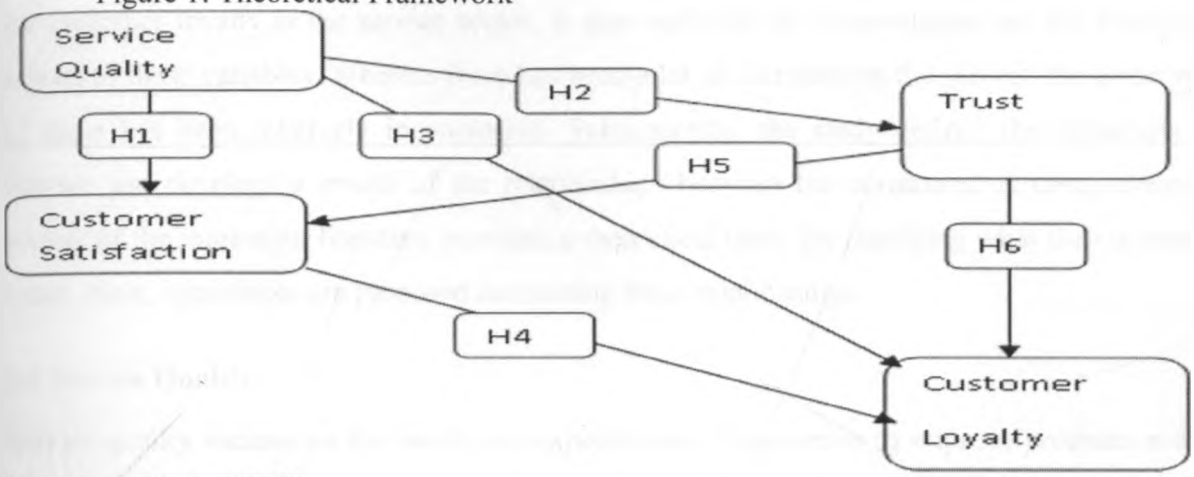
1.4.1 Main objective

The main objective is to evaluate whether quality of service rendered to patients has a significant impact on their satisfaction which in turn derives trust and loyalty to the services provided by the healthcare provider.

1.4.2 Specific objective

1. To examine service quality in the context of multi-variables.
2. To evaluate how trust links the factor of customer satisfaction and customer loyalty.
3. To evaluate how the effect of customer satisfaction impacts on customer loyalty.
4. To find the significant direct and indirect relationship between the constructs.

Figure 1: Theoretical Framework



Source: Author (2012)

1.5 Significance of the study

By the end of this research, customer satisfaction index would have been measured. Likewise drivers of trust and loyalty will as well be assessed. Also a room for other researchers will be created to develop other proposals to grow knowledge in maintaining clientele. The researcher expects that service efficiency will be enhanced after knowing what the clients (kings) expect and this will mean improved service quality and hence customer base growth by organizations.

1.6 Chapter Summary

This chapter laid down the intended research objectives and the questions under which the research was undertaken. The scope of the study has also been highlighted together with the background information of the industry and reasons as to why the research is important. The next chapter is a review of published literature on the topic and is intended to demonstrate the evidence or paucity thereof of the evidence on role of quality services as it leads to patient trust and retention.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter summarized the different literature by accredited scholars and authors on previous research done on the role of service quality, customer satisfaction and trust on how they affect the customer loyalty in the service sector. It also evaluates the inter-relation and the mediation effects of these variables. Whereas there has been a lot of literature on the subject, the direct role of these has been relatively inconclusive. Subsequently, the study defines the constructs of interest and develops a model of the relationships between the constructs. A comprehensive review of the marketing literature provides a theoretical basis for clarifying what the constructs mean. Next, hypotheses are proposed concerning these relationships.

2.1 Service Quality

Service quality focuses on the needs and expectations of customers to improve products and/or services. The measurement of service quality measures the gap between the customer's level of expectation and how well they rated the service(s). Although hospitals the world over offer similar kinds of services (Lim & Tang 2000), quickly matching their competitors' innovations, customers can perceive differences in the quality of service. A general definition is "the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs" (Johnson and Winchell, 1988). Service quality is important to all 77 *International Research Journal of Finance and Economics - Issue 36 (2010)* organizations as it is "regarded as a driver of corporate marketing and financial performance" (Buttle,1996). Various models have been developed for measuring perceptions of service quality (Gro¨nroos,1983; 1990; Parasuraman et al., 1985; 1988;, 1991; Stafford, 1996; Bahia and Nantel, 2000; AldlaiganandButtle, 2002). Service quality has been recognized as a key strategic issue for organizations operating in service sectors (Lewis and Mitchell, 1990).

Quality is differentiable and stem from the expectations of customers. Hence, it is necessary to identify and prioritize expectations for service and incorporate these expectations into a process for improving service quality (Kassim and Bojei, 2001; Goodman et. al., 1986). Implementing

and evaluating service quality is a very complex process. Two aspects need to be taken into consideration when evaluating service quality: content and delivery (Zeithaml and Bitner, 1996). Customers may be in the best position to evaluate the quality of delivery, while the service providers are the best judges of the content of the message. Though there are a number of different aspects of services involved, this study focuses on only one: the perceptions of health care seekers and the quality of the services.

Quality has been defined from different perspectives and orientations, according to the person making the definition, the measures applied and the context within which it is considered (Tapiero, 1996). It has been defined as "excellence" (Peters and waterman, 1995) "value" (Feigenbaum, 1995), "fitness for use" (Juran and Gryana, 1988), "conformance to requirement" (Crosby, 1979) and meeting and/or exceeding customers' expectations" (Parasuraman et April 12, 2010 [African Journal of Business & Management (AJBUMA)] 154 et al., 1985). More often than not customers demand quality experience and their resultant behaviour is replicated in terms of an attitude towards consumption behaviour, which has led researchers and analysts to regard quality as a single most important factor for long term success and survival. Because of this Deming (1982) asserts that quality aims at the needs of the customer, present and future. As perceived service quality portrays a general, overall appraisal of service i.e. a global value judgment on the superiority of the overall service, it is viewed as similar to attitude.

Prescriptions of service quality could occur at multiple levels in an organization – e.g. with the core service, physical environment and interaction with service providers (Bitner and Hubert 1994) on the other hand customer's overall satisfaction with the service organization is based on a function of all the encounters or experiences of the customers with that of the organization. Similar to service quality, customer satisfaction can occur at multiple levels of an organization for example with the contact person, satisfaction with the core service and satisfaction with the organization as a whole. Service quality is a concept that has aroused considerable interest in the research literature because of the difficulties in both the defining it and measuring it with no overall consensus emerging on either (Wisniewski, 2001). There are a number of different other definitions as to what is meant by service quality. One that is commonly used defines service quality as the extent to which a service meets customer's needs and expectations (Lewis and

Mitchell, 1990). Service quality can thus be defined as the difference between customer expectations of service and perceived service. If expectations are greater than performance, then perceived quality is less than satisfactory and hence customer dissatisfaction occurs (Parasuraman et al., 1985). Degree of intangibility has been proposed as a means of distinguishing between products and services (Levitt, 1981) and Darby and Karni (1973) and Zeithaml (1981) highlight the fact that degree of tangibility has implications for ease of service or product quality evaluation. Onkvisit and Shaw (1991) feel, however, that the significance of intangibility is over-emphasized and that the service provider's offer is their productive capacity. As services are produced and consumed simultaneously, customers are present and may take part in the delivery process. They may, therefore, affect or shape the performance and quality of the service, in some cases causing disruption and increased waiting time and consequently lower customer satisfaction (Zeithaml and Bitner, 1996).

Vandermerwe (1993) suggests that connections between the employee and customer can be made through physical, psychological or electronic means, but some sort of interactivity must be present if a quality service that sustains long term customer satisfaction is to be the result. Quality in the service operation is actually created at the "moment of truth" (Carlzon, 1989) and Gronroos (2001) refers to this as the "moment of opportunity" where value can be added to the perceived service quality. Once the customer has left, however, a new moment of truth must be created, such as a service "recovery" (Hart et al., 1990) to correct a previously created problem. Vandermerwe (1993) goes further to say that "in services the offering and the employee are inseparable".

Previous research has indicated that high levels of customer satisfaction are related to the service quality provided through customer interactions (van der Wiele et al., 2002; Vilares and Coehlo, 2003). The service profit chain (Heskett et al., 1994) specifically identifies a relationship between employee satisfaction, service quality and customer satisfaction. Research investigating these relationships has subsequently generated support for this model (Loveman, 1998; Anderson and Mittal, 2000; Voss et al., 2004). Frei et al. (1997) also suggested that processes have an important role to play in driving service quality and customer satisfaction. More specifically, service quality affects the repurchase intentions of customers (Ghobadian et al., 1994). Many

companies are focusing upon service quality improvement issues in order to drive high levels of customer satisfaction. Parasuraman et al. (1985) also recognized the significance of staff satisfaction and service quality as drivers of customer satisfaction in developing their SERVQUAL measurement tool. Heskett et al. (1994) proposed a positive linear relationship between staff satisfaction, service quality and customer satisfaction leading, ultimately, to profitability.

Bahia and Nantel (2000) consequently developed a specific new scale for perceived service quality in retail banking. According to the other studies, customer satisfaction and service quality have been considered as two distinct, though highly correlated, constructs (Bansal and Taylor, 1997; Dabholkar et al., 2000). In marketing literature, several studies have found positive relationships of service quality and customer satisfaction with customer behavioral intentions (Anderson and Sullivan, 1993; Parasuraman et al., 1988). Further, studies have also shown that customer satisfaction mediates the effect of service quality on behavioral intentions (Gotlieb et al., 1994). It is recommended that customer satisfaction should be measured separately from service quality in order to understand how customers evaluate service performance (Dabholkar et al., 2000).

From the above literature we can posit the following hypothesis;

H1: Service quality has a positive effect on customer satisfaction

H2: Service quality has a positive effect on trust

H3: Service quality has a positive effect on customer loyalty

2.2 Customer satisfaction

Customer satisfaction is not customer loyalty. Customer satisfaction is a requirement to do business. It is defined as a measure of customer expectation being exceeded, met or not met. The expectation can be predictable. Satisfaction is a consumer's purchase perception of the difference between the expected and received value of a transaction. Zeithaml and Bitner (2000) defined customer satisfaction as the "customers' evaluation of a product or service in terms of whether that product or service has met their needs and expectations". Satisfaction is therefore a consumer's post-purchase evaluation and affective response to the overall product or service experience.

In a service context, Asuncion et al. (2004) concluded that customer satisfaction was the key factor affecting service loyalty. Oliver (1999) suggested that satisfaction is a pleasurable fulfilment and that for satisfaction to affect loyalty, cumulative satisfaction (an effective response) was required so each and every satisfaction episode gets blended or becomes aggregated. Zairi (2000) found that satisfied customers possibly share their experiences with five or six people while dissatisfied clients might inform another ten. Since customer loyalty responses are conative in nature representing levels of customer commitment towards the service provider (Chiou et al. 2002; Oliver, 1997, 1999), we also expect satisfaction to be related to customer loyalty.

As a consequence, to get a high score of customer satisfaction, all you have to do is do what customers expect from you. Generally, high satisfaction means high retention, but the result is vulnerable as Frederick Reichheld found that "between 65 and 85 percent of customers who switched suppliers were satisfied or very satisfied prior to their departure". Therefore, the thought that if you satisfy your customers, you can get their loyalty which results in an increase in revenues is not completely correct. The basis for sustained profitability and growth is not customer satisfaction but customer loyalty.

A substantial amount of research has concluded that satisfaction is an important determinant of customer loyalty (Bearden and Teel, 1983; Cronin and Taylor, 1992; Caruana, 2002; Dick and Basu, 1994; Oliva et al., 1992; Selnes, 1993). Also, Oliver (1999) defined customer loyalty as "a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts have the potential to cause switching behaviour". The satisfaction/dissatisfaction occurring through a matching or mismatching of expectations and perceived performance is considered to act as an antecedent to loyalty behaviour (Bitner, 1990).

The customer loyalty is an emotional relationship between customers and the company. It is much more difficult to get loyalty from customers than getting their satisfaction. In addition to satisfying the customers, the company must also exceed customers' expectations by being able to do things the customers do not expect. Customer loyalty is the proof of strong customer

relationship. It assures that the retention is high as well as stable. Other reasons that customer loyalty management has been considered more important than the task of customer satisfaction are as the followings:

i. Loyal customers will speak positively of the company product & service [2] (Bettencourt, 1997). Consequently, they will be become an extension of your sales force.
ii. They typically concentrate more spending with companies they trust.
iii. They are more tolerant when they feel a little dissatisfied.
iv. Loyal customers cost less to serve than other customers.

We therefore proposed that:

H4: Customer satisfaction has a positive effect on customer loyalty

2.3 Trust

From literature, trust can be defined as

i. "as existing when one party has confidence in the exchange partner's reliability and integrity" (Morgan and Hunt, 1994, p. 23). It means that trust is considered as a belief or expectation about a service provider's expertise or reliability (Anderson and Weitz, 1990), (Schurr and Ozanne, 1985).
ii. as the customers' expectations that the company "can be relied on to deliver on its promises" (Sirdeshmukh et al., 2002).

Hence, trust is considered as a reliance on a service provider when the relationship between them involves vulnerability and uncertainty (Ganesan, 1994; Moorman et al., 1993). Fishbein and Ajzen's (1975) theory of reasoned action suggests that trust is belief and it precedes other behavior like loyalty. Trust is seen by many authors across disciplines as a basis for successful human interaction. In the business context authors view trust as lubricant or key enabler for cooperation. Trust has been shown to facilitate efficient business transactions (Williamson 1988; Williamson 1993; Noteboom 1996, p.989) and increase customer satisfaction (Dwyer, Schurr et al. 1987; Ganesan 1994; Morgan and Hunt 1994; Doney and Cannon 1997; Geyskens, Steenkamp et al. 1999). Trust also helps organizations reduce the risks associated with opportunism in exchange relationships (Morgan and Hunt 1994; Pavlou 2002). More generally, trust promotes cooperative behavior within organizations and between organizational stakeholder groups such as clients (Hennart 1988; Morgan and Hunt 1994; Noteboom 1996; Parkhe 1998;

Lewis 1999; Brower, Schoorman et al. 2000; Child 2001; Chami and Fullenkamp 2002; Boersma, Buckley et al. 2003); as such, trust can also serve as a source of competitive advantage for the organization (Barney and Hansen 1994).

Trust is seen as a social phenomenon. It functions as a social resource that contributes to social coordination. It is considered a functional substitute for knowledge about other actors under the circumstances of virtual anonymity. Simmel distinguished between personalized and generalized trust and between belief, knowledge-based trust based and emotion-based trust (Endress, 2002). Schütz stressed the distinction of familiarity (Vertrautheit) and trust (Vertrauen) and Parson developed a view of trust as an attitudinal basis for solidary relationships. Parson saw trust as an enabling device for mechanisms such as money, power, influence and obligations. This definition comes close to what Luhmann later called system trust and Giddens 'trust in expert systems'. Garfinkel and Goffman shifted the view back from system trust to interpersonal trust. Garfinkel viewed trust as tacit knowledge and Goffman defined trust as reliance on a moral character that isessential for cooperation (Endress 2002).

In contemporary sociological theory there seem to be four dominant approaches to trust: Luhmann with his system-theoretic approach, Coleman and the rational-choice argumentation, Giddens and the structuration theory view as well as Sztompka and the macro-sociological change perspective (Endress, (2002).Trust is a complex, dynamic social phenomenon that can take on various forms, is multileveled (Rousseau, Sitkin et al. 1998; Shockley-Zalabak, Ellis et al. 1999), culturally rooted (Fukuyama 1995; Doney, Cannon et al. 1998; Shockley-Zalabak, Ellis et al. 1999; Ashraf, Bohnet et al. 2004) and multidimensional (Lewis and Weigert 1985; Dasgupta 1988; Lewicki and Bunker 1995; McAllister 1995; Mishra 1996; Tschannen - Moran and Hoy 2000).

Most researchers define trust in terms of positive expectations and a willingness to be vulnerable (Rousseau, Sitkin et al. 1998; Shankar, Urban et al. 2002; Ferrell 2004). Positive expectations are confident beliefs by Party A that Party B will act in a fashion consistent with Party A's welfare (Barney and Hansen 1994). Mayer, Davis and Schoorman (1995) separate trust from its antecedents and outcomes (Pavlou 2002). Trust is seen as a behavioural outcome based on the

evaluation of trustworthiness of an actor (Mayer and Davis 1999). McAllister (1995) distinguishes affect based and cognition based characteristics of trust: (1) Cognition-based characteristics are related to competence and reliability (2), affect or emotion-based characteristics are connected to openness and benevolence (Saparito, Chen et al. 2004). Mayer et al. also underscore the relevance of integrity. Integrity is the perception that the trustee adheres to a set of 4 principles that the trust or finds acceptable. Based on Mishra (1996) and Hoy and Tschannen-Moran (1999) trust here is defined as an act to make oneself vulnerable to another party based on the belief that the other party will behave honest, competent, transparent, reliable and benevolent.

Trust results from interactions that span individuals (Rotter 1971), teams (Bigley and Pearce 1998), organizations (Hosmer 1995),institutions (Zand 1972) and systems (Giddens 1990; Luhmann 2000).

H5: Trust has a positive effect on customer satisfaction

H6: A higher level of trust leads to a higher level of customer loyalty

2.4 Customer loyalty

The term customer loyalty is used to describe the behaviour of repeat customers, as well as those that offer good ratings, reviews, or testimonials. Some customers do a particular company a great service by offering favourable word of mouth publicity regarding a product, telling friends and family, thus adding them to the number of loyal customers. However, customer loyalty includes much more. It is a process, a program, or a group of programs geared toward keeping a client happy so he or she will provide more business.

Customer loyalty can be achieved in some cases by offering a quality product with a firm guarantee. Customer loyalty is also achieved through free offers, coupons, low interest rates on financing, high value trade-ins, extended warranties, rebates, and other rewards and incentive programs. The ultimate goal of customer loyalty programs is happy customers who will return to purchase again and persuade others to use that company's products or services. This equates to profitability, as well as happy stakeholders.

2.5 Chapter Summary

This chapter has explored the multiple literatures done and reviewed by other researchers on the subjects under study. The researcher has endeavoured to bring out the definitions of the subjects and their interrelations as well as positing the hypothesis. The next chapter will give a general view of the methodology, the sample and sample size, data collection tools, analytical software used mode of analysis and justification of the results.

CHAPTER THREE

METHODOLOGY

3.0 Overview

This chapter describes the procedures and methods used in carrying out the research. The design has been discussed with the aim of defining, identifying and justifying the design used. The population, sample characteristics and size is provided and has been discussed. It also highlights the methods and data collection instruments used. The key steps taken and research procedures, method of data collection, schedules and timing are also covered. Quantitative findings are collected using questionnaires survey. Finally a summary of the chapter gives a conclusion to the key issues that are discussed in the chapter.

3.1 Sample size

The main point of entry of clients into AKUH are the Accident and Emergency, Casualty, Consulting Clinics and support departments such as radiology, pathology, pharmacy and physiotherapy. From available data casualty receives most volume of walk-in patients.

The formula illustrated below will be used to determine the sample size

$$n = \frac{Z^2 p(1-p)}{m^2} \quad \ldots\ldots (1)$$

Where; n = required sample size, **Z** = confidence level at 95% (standard value of 1.96) **P** = estimated prevalence of CSI and **M** = margin of error at 5% (standard value of 0.05)

The standard benchmark for customer satisfaction Index in AKUH is 80%. The recent survey has shown that the CSI=75%. Therefore using this as our proportion at 95% confidence interval and allowing a marginal error=±5%

The following computation is given.

$N=(1.96)^2*(.75(.25))/0.0025$

$N=(3.84*0.1875)/0.0025$

$N=288.12$

$N=288.$

3.2 Sampling

Sampling is that part of statistical practice concerned with the selection of individual observations intended to yield some knowledge about a population of concern, especially for the purposes of statistical inference. Each **observation** measures one or more properties (gender, weight, location, Age etc.) of an observable entity enumerated to distinguish objects or individuals. Survey weights often need to be applied to the data to adjust for the sample design.

3.2.1 Cluster sampling

In a cluster sample, the population is divided into non-overlapping subpopulations usually based on geographic or political boundaries. For a simple cluster sample, a random sample of subpopulations (clusters) is obtained and, within each selected cluster, each subject is sampled.

A **cluster** is therefore simply an aggregation of sampling units of interest for a particular survey that can be unambiguously defined and can be used as a sampling unit from which to select a smaller sub-sample.

Ideally, clusters should meet four criteria

1) They should have relatively clear physical boundaries to facilitate identification in the field
2) They should be located somewhat close to one another; otherwise, costs will soar, defeating the major purpose of cluster sampling.
3) Clusters should not include too many people; this will help minimize the amount of sampling frame development that has to be done.
4) Information on the size of the cluster should ideally be available prior to sample selection.

A common modification to the cluster sample design is to select the clusters with probability proportionate to the size of some variable in the population, such as the population size. This type of cluster sample is said to be self-weighting because every unit in the population has the same chance of being selected.

In theory, clusters are chosen to be as heterogeneous as possible, that is, the subjects within each cluster are diverse and each cluster is somewhat representative of the population as a whole. Thus, only a sample of the clusters needs to be taken to capture all the variability in the population. In practice, however, clusters are often defined based on geographic regions or

political boundaries, so that conducting a cluster sample reduces the time and cost associated with the survey.

Advantages:

- Only need to obtain list of units in the selected clusters.
- Cost-effective
- Increases variability.

Disadvantages:

- Not intended for calculation of estimates from individual clusters.
- Less precise than simple random sample.

The table below explains the distribution of the population by the units

UNIT	AVAILABLE VOLUME	NUMBERS	ACHIEVED SAMPLE
Main Casualty	663	97	84 (87%)
Accident & Emergency	51	7	6 (86%)
Consulting Clinics	304	44	39 (89%)
Radiology	428	62	54 (87%)
Pathology	218	32	28 (88%)
Pharmacy	187	27	24 (89%)
Physiotherapy	128	19	16 (84%)
Total	**1979**	**288**	**251 (87%)**

Table 1: The proposed Sample Size

3.3 Measures

To ensure the content validity of the scales, the items selected must represent the concept about which generalizations are to be made. Therefore, items selected for the constructs were mainly adapted from prior studies to ensure content validity. Four items for the trust construct were adapted from Gefen et al. (2003). The items to measure customer satisfaction were taken from previous measures of overall level of user satisfaction or Web customer satisfaction (Wang et al., 2001; Doll et al., 1988; Palvia, 1996; Rai et al., 2002). Service Quality was measured by three items adapted from Lassar et al. (1995). Items for the loyalty were taken from the previous validated inventory (Chaudhuri and Holbrook, 2001) and modified to fit the healthcare service provider context studied. Anchors ranging from "strongly disagree" to "strongly agree" were used for all questions. Pre-testing and pilot testing of the measures were conducted by selected consumers.

3.4 Subjects

According to the need of each research constructs and hypotheses, Predictive Analytics Software, PASW version 17.0.1 and Analysis of Moment Structures, AMOS version 17.0.2 were used to code and analyse the data. Pre-test of the questionnaire was conducted involving 30 respondents. As a result of the feedback received from the pretesting and the respondents' comments, the phrasing of some items was clarified and the instructions for filling in the questionnaire modified in order to increase the validity of the survey instrument. Questionnaires were designed for self-administration. All constructs adapted scales form the relevant studies and this study gauge the respondents by reporting the four factors of service quality, trust relation, customer satisfaction, and customer loyalty on a five-point Likert scale with anchors on strongly disagree (1) and strongly agree (5). The period of survey was from April, 2012 to May, 2012.

3.5 Confirmatory Factor Analysis

Factor analysis is a statistical method used to find a small set of unobserved variables (also called latent variables, or factors) which can account for the covariance among a larger set of observed variables (also called manifest variables). A factor is an unobservable variable that is assumed to influence observed variables. Factor analysis is also used to assess the reliability and validity of measurement scales (Carmines & Zeller, 1979). Factor analysis is a family of statistical strategies used to model unmeasured sources of variability in a set of scores. Confirmatory factor analysis (CFA), otherwise referred to as restricted factor analysis, structural factor analysis, or the measurement model, typically is used in a deductive mode to test hypotheses regarding unmeasured sources of variability responsible for the commonality among a set of scores. It is used to verify the factor structure of a set of observed variables. CFA allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists. The researcher uses knowledge of the theory, empirical research, or both, to postulate the relationship pattern a priori and then tests the hypothesis statistically.

In fact, CFA is a special case of the structural equation model (SEM), also known as the covariance structure (McDonald, 1978) or the linear structural relationship (LISREL) model (Jöreskog & Sörbom, 2004).

3.6 Structural Equation Models

Structural equation models (SEMs), also called Sequential or simultaneous equation models, are multivariate (i.e. multi-equation) regression models. It is a statistical methodology that is widely used by researchers in the social, behavioural and educational sciences. SEM was first introduced in the 1970s. SEM consists of two components: a measurement model linking a set of observed variables to a usually smaller set of latent variables and a structural model linking the latent variables through a series of recursive and non-recursive relationships.

Unlike the more traditional multivariate linear model, however, the response variable in one regression equation in SEM may appear as a predictor in another equation; indeed, variables in a SEM may influence one-another reciprocally, either directly or through other variables as intermediaries. These structural equations are meant to represent causal relationships among the variables in the model.

SEM as a tool for analysing multivariate data has been long known in marketing to be especially appropriate for theory testing (Bagozzi, 1980). SEM go beyond ordinary regression models to incorporate multiple independent and dependent variables as well as hypothetical latent constructs that clusters of observed variables might represent.

A structural equation model implies a structure of the covariance matrix of the measures (hence an alternative name for this field, "analysis of covariance structures"). Once the model's parameters have been estimated, the resulting model-implied covariance matrix can then be compared to an empirical or data-based covariance matrix. If the two matrices are consistent with one another, then the structural equation model can be considered a plausible explanation for relations between the measures.

3.7 Path Diagrams

It is common to display confirmatory factor models as path diagrams in which squares represent observed variables and circles represent the latent/ unobserved variables. The circle labelled ξ (ksi) represents latent variables or (common) factors. A factor can point to more than one observed variable as can be shown in Figure 2, $\xi 1$ is formed by three observed variables $x1$ through $x3$. Factor loadings are represented by λij; $\lambda 31$is, for example, the effect (regression slope) of $\xi 1$on $x3$. The squared factor loading $\lambda^2 ij$; is referred to as a communality representing the proportion of variance in the i^{th} observed variable that is explained by the j^{th} latent variable (Brown, 2006: 61). The circles labelled δi (delta) represent unique factors because they affect

only a single observed variable. The δi incorporates all the variance in each xi, such as measurement error, which is not captured by the common factors. When observed and latent variables are mean cantered to have deviations from their means, the confirmatory factor model can be summarized by the equation;

$$\mathbf{X} = \Lambda\xi + \boldsymbol{\delta}\ldots (2)^{1}$$
$$\xi = \Lambda\mathbf{X} + \boldsymbol{\delta}\ldots (3)^{2}$$

$X$is the vector of observed variables, Λ (lambda) is the matrix of factor loadings connecting the ξi to the xi, ξ is the vector of common factors, and δ is the vector of unique factors. It is assumed that the error terms have a mean of zero, $E(\delta) = 0$, and that the common and unique factors are uncorrelated, $E(\xi\delta')=0$. Equation 2 can be rewritten for Figure 2 as:

Our model has four latent variables namely;

1. Quality service($\xi 1$), is represented in a circle that is manifested by three observed variables $x1$ through $x3$ in squares. Mathematically this can be represented as follows

$$\boldsymbol{\xi 1 = ((\lambda 11 x1 + \delta 1) + (\lambda 21 x2 + \delta 2) + (\lambda 31 x2 + \delta 3))}\ldots(4)$$

2. Patient satisfaction($\xi 2$), represented in a circle that is manifested by three observed variables $x4$ through $x6$ in squares.

$$\boldsymbol{\xi 2 = ((\lambda 42 x4 + \delta 4) + (\lambda 52 x5 + \delta 5) + (\lambda 62 x6 + \delta 6))}\ldots(5)$$

3. Trust($\xi 3$), represented in a circle that is manifested by four observed variables $x7$ through $x10$ in squares.

$$\boldsymbol{\xi 3 = ((\lambda 73 x7 + \delta 7) + (\lambda 83 x8 + \delta 8) + (\lambda 93 x9 + \delta 9) + (\lambda 103 x10 + \delta 10))}\ldots(6)$$

4. Loyalty($\xi 4$), represented in a circle that is manifested by five observed variables $x11$ through $x15$ in squares.

$$\boldsymbol{\xi 4 = ((\lambda 114 x11 + \delta 11) + (\lambda 124 x12 + \delta 12) + (\lambda 134 x13 + \delta 13) + (\lambda 144 x14 + \delta 14) + (\lambda 154 x15 + \delta 15))}\ldots(7)$$

Here the similarities with regression analysis are evident. Each xi is a linear function of one or more common factors plus an error term (there is no intercept since the variables are mean cantered). The primary difference between these factor equations and regression analysis is that eachξi is unobserved in CFA. Consequently, estimation proceeds in a manner distinct from the conventional approach of regressing each x on the ξi.

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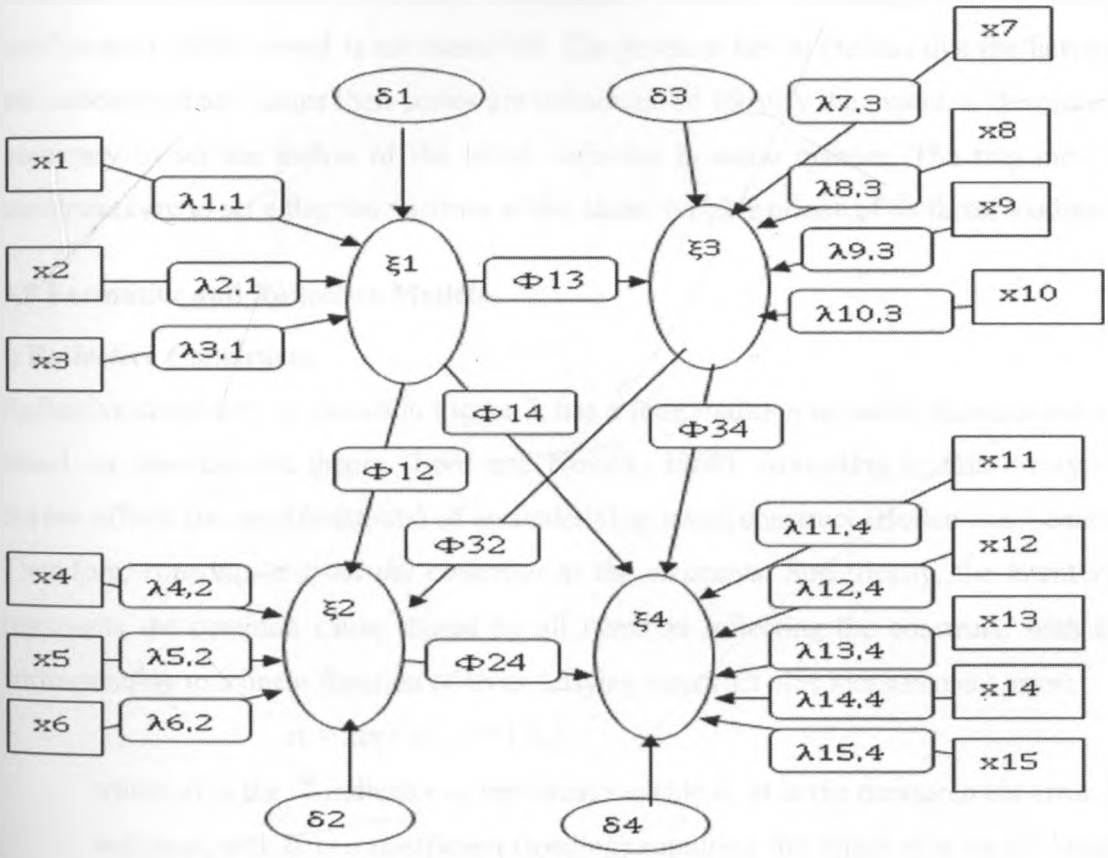
[1]Reflective construct
[2]Formative construct

Single-headed arrows are used to imply a direction of assumed "causal" influence, and double-headed arrows represent covariance between two latent variables. Latent variables "cause" the observed variables, as shown by the single-headed arrows pointing away from the circles and towards the manifest/observed variables.

Table 2: Notations for Confirmatory Factor Analysis

Name	Symbol	Matrix Form	Description
Ksi			Latent variable
x	x	X	Observed variable
Lambda	λ	Λ	Factor loading
Phi	Φ	Φ	Factor variance and covariance
Theta delta	Δ	Θ	Error variance and covariance

Figure 2: The Formative Model



Source: Author (2012)

3.8 Model Identification

One essential step in CFA is determining whether the specified model is identified. If thenumber of the unknown parameters to be estimated is smaller than the number of pieces ofinformation provided, the model is under-identified. For example, the equation 10 = 2x + 3y isnot identified because it has two unknowns but only one piece of information (one equation).That is, an infinite number of values for x and y could make the equation true; the equation is not solvable. To make it just-identified, another independent equation should be provided; for example, adding 3 = x + y ends up with x=-1 and y=4. Provision of more than one independent equation will make it over-identified.

In CFA, a model is identified if all of the unknown parameters can be rewritten in terms of the variances and co-variances of the x variables. Without introducing some constraints any confirmatory factor model is not identified. The problem lies in the fact that the latent variables are unobserved and hence their scales are unknown. To identify the model, it therefore becomes necessary to set the metric of the latent variables in some manner. The two most common constraints are to set either the variance of the latent variable or one of its factor loadings to 1.

3.9 Formative and Reflective Models

i) Reflective Constructs

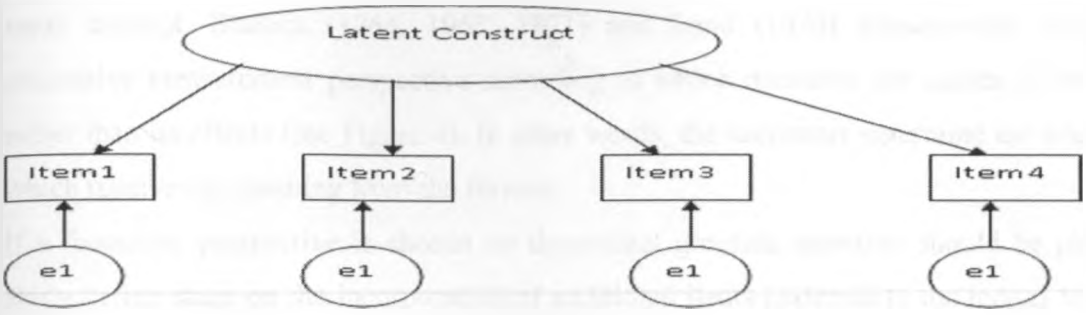
Reflective constructs as shown in Figure 3, has a long tradition in social sciences and is directly based on classical test theory (Lord and Novick, 1968). According to this theory, measures denote effects (or manifestations) of an underlying latent construct (Bollen and Lennox, 1991). Therefore, *causality is from the construct to the measures*. Specifically, the latent variable η represents the common cause shared by all items xi reflecting the construct, with each item corresponding to a linear function of its underlying construct plus measurement error:

$$xi = \lambda i\eta + \varepsilon i, \quad i = 1,2,3$$

where xi is the i^{th} indicator of the latent variable η, εi is the measurement error for the i^{th} indicator, and λi is a coefficient (loading) capturing the effect of η on xi. Measurement errors are assumed to be independent (i.e., cov(εi, εj)=0, for $i \neq j$) and unrelated to the latent variable (i.e., cov(η, εi)=0, for all i).

Observed measures (i.e. indicators) are assumed to reflect variation in latent (unobserved) constructs. Thus, the direction of causality is assumed to run from the construct to the indicators.

Figure 3: Reflective Construct



Source: Author (2012)

Changes in the construct are expected to be manifested in changes in all indicators comprising a multi-item scale. **A change in the construct causes a change in the indicators.**
The indicators all share a common theme and are interchangeable. This enables the researchers to measure the construct by sampling a few relevant indicators underlying the domain of the construct (Churchill, 1979; Nunnally and Bernstein, 1994).

If a reflective measurement perspective is chosen on theoretical grounds, it is not acceptable to change one's mind based on the results obtained during scale development (e.g. poor reliability) and declare the measure formative!

The key features of the reflective construct is characterized by the following

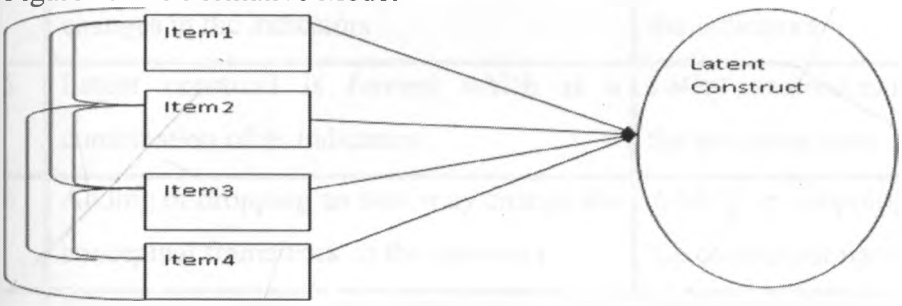
- Direction of causality is from construct (unobserved) construct to the indicator (observed) variable.
- Indicators are modelled as effects of the latent variable i.e. they reflect the latent variable
- The indicator correlations are explained by the latent variable
- Measurement error is indicated at item level
- A linear composite (summated score) is not equivalent to latent variable.
- Indicators are assumed to share only the latent variable as a common cause, implying that COV (,)=COV (,)= COV (,)=0 (independence of measurement errors)

ii) Formative Constructs

The formative measurement model was first proposed by Curtis and Jackson (1962) who challenged the characteristic of positively correlated measures as a necessary condition. They argued that in specific cases measures show negative or zero correlations despite capturing the same concept. Blalock (1964, 1968, 1971) and Land (1970) subsequently discussed this alternative measurement perspective according to which measures are causes of the construct rather than its effects (see Figure 4). In other words, the indicators determine the latent variable which receives its meaning from the former.

If a formative perspective is chosen on theoretical grounds, attention should be placed at the study design stage on the incorporation of additional items (external to the index) to enable the assessment of indicator validity.

Figure 4: The Formative Model



Source: Author (2012)

A construct should be modelled as having formative indicators if the following conditions prevail:

- Direction of causality is from measures to construct
- The indicators are viewed as defining characteristics of the construct
- Changes in the indicators are expected to cause changes in the construct
- Changes in the construct are not expected to cause changes in the indicators
- The indicators do not necessarily share a common theme
- Eliminating an indicator may alter the conceptual domain of the construct
- A change in the value of one of the indicators is not necessarily expected to be associated with a change in all of the other indicators

- The indicators are not expected to have the same antecedents and consequences
- Indicators do not have error terms. Error is modelled at the construct level

Table 3: The Contrast between Formative and Reflective constructs

	Formative Construct	Reflective Construct
1	Direction of causality is from items to construct	Direction of causality is from constructs to items
2	Indicators are defining the characteristics of the construct	Indicators are manifestations of the construct
3	Changes in the indicators should cause changes in the construct	Changes in the indicator should not cause changes in the construct
4	Changes in the construct do not cause changes in the indicators	Changes in the construct do cause changes in the indicators
5	Latent construct is formed which is a combination of its indicators	Latent construct exists which is independent of the measures used
6	Adding or dropping an item may change the conceptual framework of the construct	Adding or dropping an item does not change the conceptual framework of the construct
7	Items can have any pattern of inter-correlation abut should possess the same directional relationship. There is no empirical test involved.	Items have high positive correlations whose empirical tests is for internal consistency and reliability using Cronbach alpha, Average Variance Extracted, and factor loadings
8	Identifying the error term is not possible	Identifying the error term in items is possible
9	It is not necessary for indicators to co-vary	Indicators are expected to co-vary
10	Item may not have similar significance of relationship with antecedents as the construct	Item relationship with construct antecedents is empirically tested using convergent and construct validity

Source: Author (2012)

Most researchers in the management sciences assume that the correct measurement model is a reflective one, whereas there are many instances in which it may be hard to justify this assumption from either theory or empirics. Borsboom et al. (2004) and Rossiter (2002) states that

designing construct measures starts with theoretical considerations. Bollen and Ting (2000), Diamantopoulos and Winklhofer (2001) and others also emphasize the need for empirically analysing these measures. After collecting data, it is often useful to know if the assumptions underlying the measurement model hold empirically or not. Of course, it is possible that the reasons for empirical disconfirmation are incorrect instrument design or mistaken responses by the respondents. But another possibility is that the theory underlying the measurement model is incorrect. Since empirical validation is accepted as a norm to validate structural model hypotheses, the same should apply to hypotheses about measurement models

3.10 Goodness of Fit Statistics.

There are many tests that can be used to test the goodness of fit of the model in the data. The goodness of fit tests helps to determine if the model being tested should be accepted or rejected. The overall fit tests do not establish that particular paths within the model that are significant. (Jaccard and Wan 1996:87) suggests the use of three fit test.

3.10.1 Model chi-square, (CMIN).

A large class of omnibus tests exists for assessing how well the model matches the observed data. $\chi 2$ is a classic goodness-of-fit measure to determine overall model fit. The null hypothesis is that the implied or predicted covariance matrix Σ is equivalent to the observed sample covariance matrix S, $\Sigma=S$. A large $\chi 2$ and rejection of the null hypothesis means that model estimates do not sufficiently reproduce sample covariance; the model does not fit the data well. By contrast, a small $\chi 2$ and failure to reject the null hypothesis is a sign of a good model fit. Relative chi-square is the chi-square fit index divided by the degrees of freedom i.e. CMIN/DF. (Carmines and McIver, 1981; 80), state that the relative chi-square should be in the 2:1 or 3:1 for an acceptable model. (Kline, 1998) says 3 or less is acceptable

3.10.2 Goodness-of-fit Index, GFI

This deals with the error in reproducing the variance-covariance matrix. By convention, GFI should be greater or equal to 0.90 to accept a model.

3.10.3 Comparative Fit Index, CFI

This is also known as the Bentler Comparative Fit Index. This compares the existing model fit with the null model which assumes that the latent variables in the model are uncorrelated.

Conventionally CFI should be equal to or greater than 0.90 to accept the model, indicating that 90% of the co-variation in the data can be reproduced by the given model.

3.10.4 Root Mean Square Error of Approximation, RMSEA

This is the discrepancy per degree of freedom. By convention, there is good model if RMSEA is less than or equal to 0.5. There is adequate fit if the RMSEA is less than or equal to 0.8. (Hu and Bentler 1999) have suggested RMSEA <=0.6 as the cut-off for a good model fit.

RMSEA does not require comparison with null model and thus does not require the author to posit as plausible a model in which there is complete independence of the latent variables as does, CFI.

3.11Disclaimer

There is no single evaluation rule on which everyone agrees. Hu and Bentler (1999) provide rules of thumb for deciding which statistics to report and choosing cut-off values for declaring significance. When RMSEA values are close to .06 or below and CFI and TLI are close to .95 or greater, for example, the model may have a reasonably good fit. Therefore, it is recommended to report not only $\chi 2$ but RMSEA and CFI/TLI.

3.12Chapter Summary

This chapter has explicitly given the methodology used in sample determination, sample size, data collection tools, analytical software used, the model to be tested, mode of analysis and justification of the results. In the next chapter, the researcher will provide the mathematical equations necessary, the purported model and the corresponding coefficients of relationship, the data findings, rejection / failure to reject the hypothesis posited.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.0 Overview

This chapter describes the procedures and methods used in data entry, data coding, data labelling, logical checks on data, statistical methods used in screening and showing the relationship between the selected variables. The data was subjected to exhaustive scrutiny and analysis where the results are presented in terms of pie and bar-charts, tables and figures.

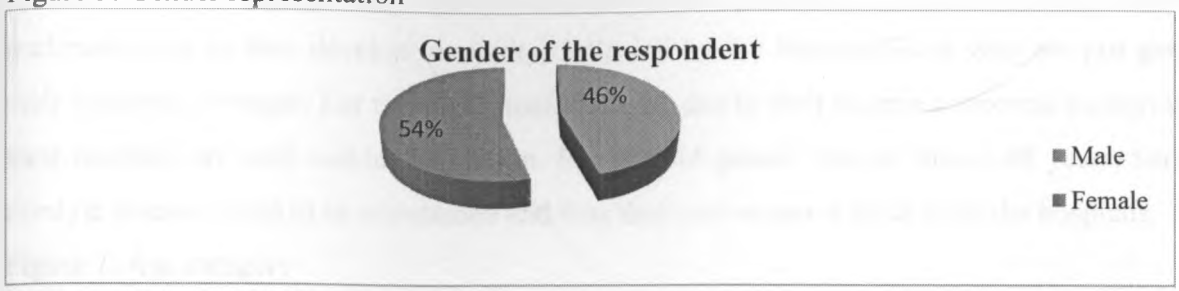
4.1 Data Analysis procedure

After the data was collected using the semi structured questionnaire, the researcher perused through the filled in questionnaires to check for the pattern of the responses. A master template was then created which corresponded to the questionnaire. The responses were coded numerically for the ease of data entry. The questionnaires were serialised to create a unique code as an identifier. Two research assistants were hired to help in data entry using the Ms-excel template. Data validation was done by taking a random questionnaire and rechecking for the data entry errors. The data was then exported to PASW version 17.0.1 for analysis. The researcher invoked the PASW syntax method to label the data using the predetermined codes, clean the data, perform logical checks, tabulate with respect to the demographic profile of the respondent and perform extra analysis as per the requirement of the data. The cleaned, labelled and complete data was then exported to AMOS version 17.0.2 for model fitting and validation.

4.2 Demographic Profile

The researcher has found out that the gender split was almost equal with female taking 54% and male 46%. Definitely not much can be inferred from this because the study was particularly in an upmarket medical facility.

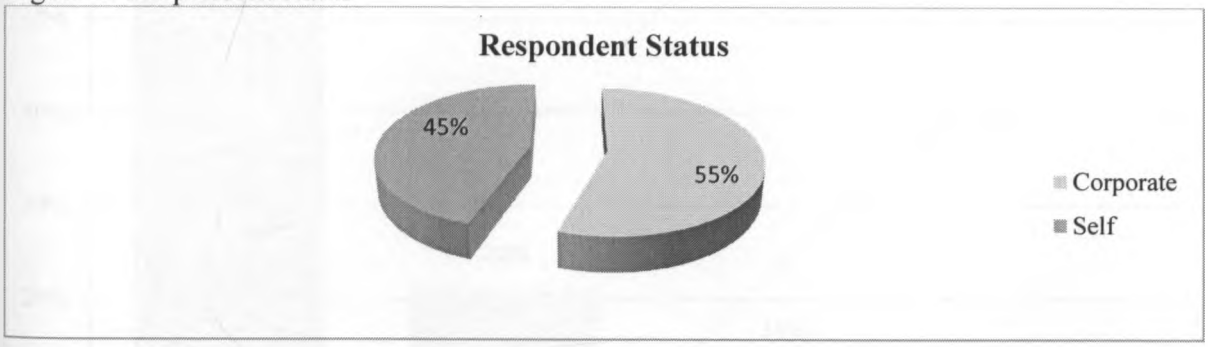
Figure 5: Gender representation



Source: Author (2012)

In today's medical field, insurance industry is upbeat with their medical schemes which have varying insurance premiums. The insurance companies hawk for their customers in organisations and also to individuals. It is in this regard that the medical facilities classify their customer aseither corporate or self. The corporate here, means that the hospital has a working protocol with the company's staff to seek medical attention and their bills are offset by the insurance firm. On the other hand a "self" customer is the one who foots the bill individually on the spot or after an amicable agreement is sought. From the study findings, the researcher havefound out that 55% of them are corporate patients while 45% are self-paying customers as can be shown on Figure6 below. This should not be construed to mean that this classification is used to discriminate the level of care.

Figure 6: Respondent status

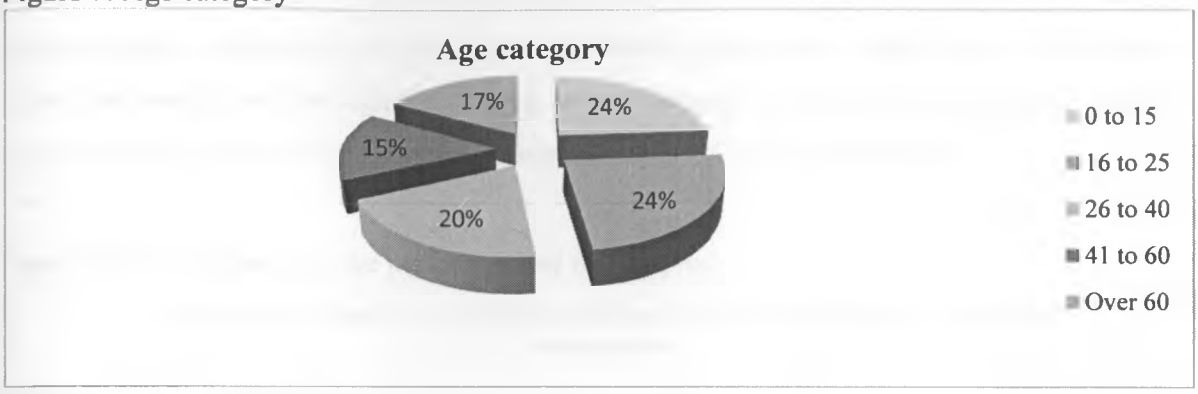


Source: Author (2012)

From Figure 7 below, 24% of the clients were classified as paediatrics (0 to 15 years), 24% were within the age of 16 to 25 years, which is regarded as the very active group while the young tucks/ adults who are within 26 to 40 year were 20%. The 41 to 60 years were 15% while those above 60 year were 17%. Basically from this chart, there is so much to infer as this is the

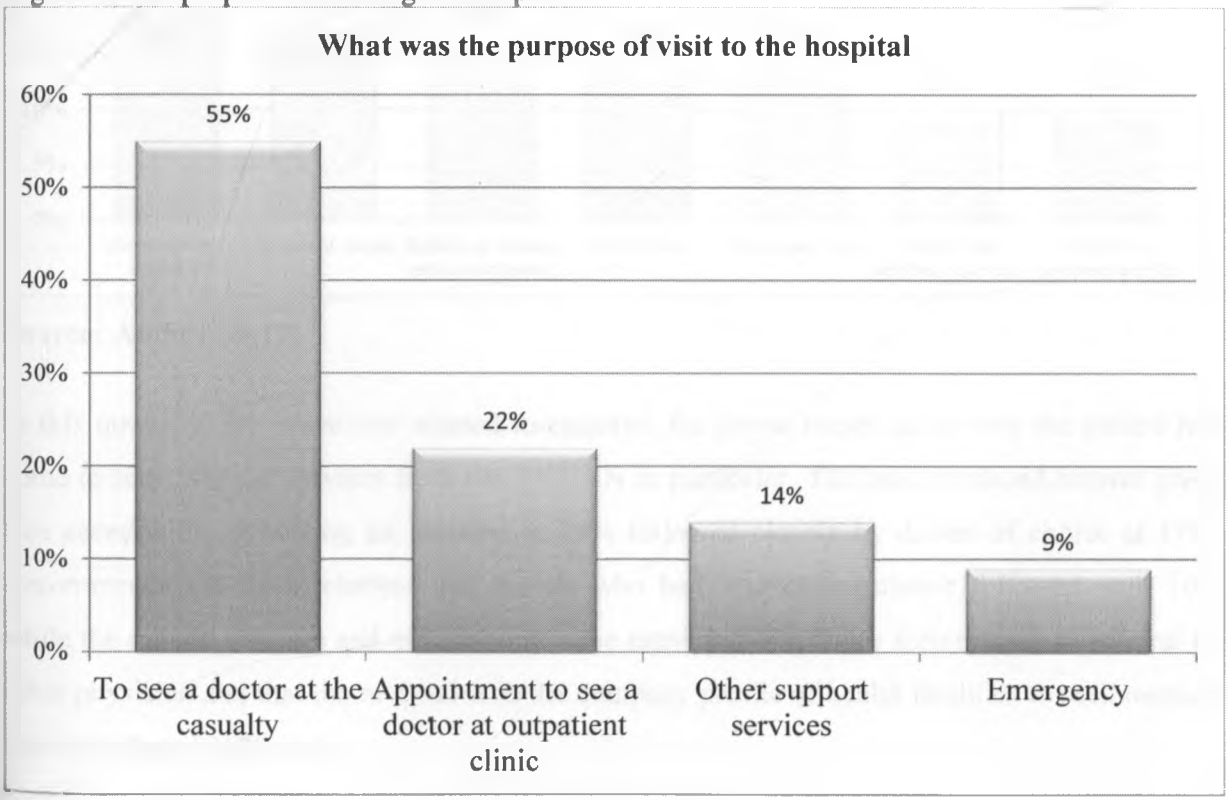
scenario on the ground. We expect to have more paediatrics because of the different acclimatization as they develop immunity, followed by the baby-boomers who are just getting their immunity stronger. For the young tucks/ adults, due to their diverse economic backgrounds their numbers are well within the margin. For the old guards that are above 40 years, various lifestyle diseases need to be maintained and thus they cannot move away from the hospitals.

Figure 7: Age category



Source: Author (2012)

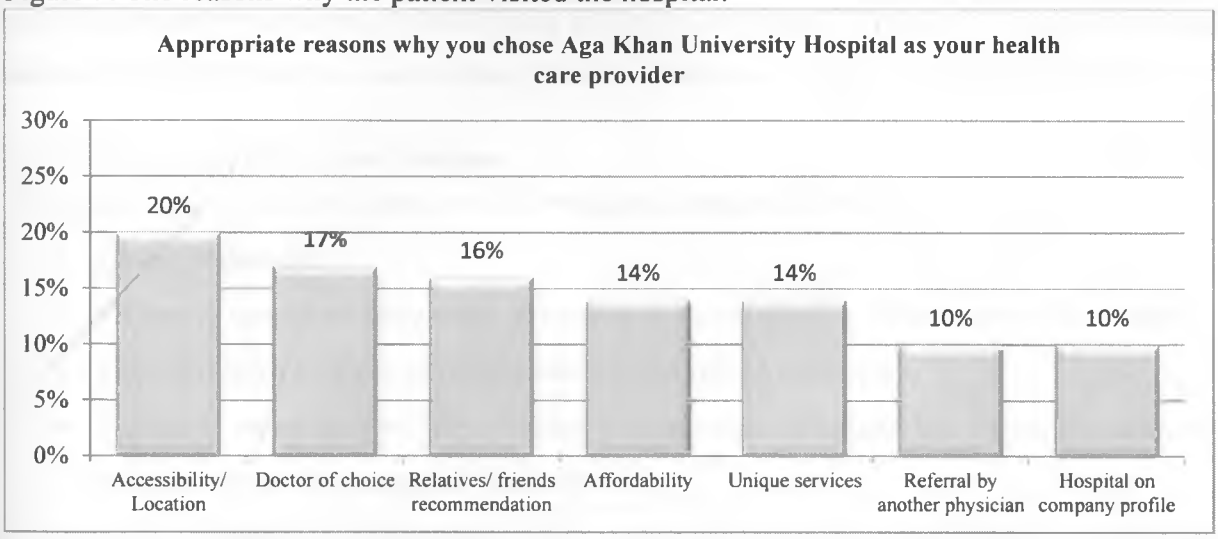
Figure 8: The purpose of visiting the hospital



Source: Author (2012)

From Figure 8 above, 55% of the sampled respondents came to the health facility to seek medical attention at the casualty which in real life it is the prime reason where the an individual visits a health facility to have his or her feeling made comfortable. Followed closely is the 22% of the respondents who had come to the health facility to book for appointment depending on their health care needs. There were quite a number of respondents who came to seek for support services who added up to 14%. These support services which include pharmacy, radiology, physiotherapy, counselling services. The respondents who were categorized as emergency are those that would come through the "Accident and Emergency" in which the patients require that urgent medical attention. Of the respondents sampled, 9% fall in this category.

Figure 9: The reasons why the patient visited the hospital.



Source: Author (2012)

In this question, the researcher wanted to establish the prime reason as to why the patient had come to seek medical services from the AKUHN in particular. The most profound answer given was accessibility following its location at 20% followed closely by doctor of choice at 17%. Recommendation from relatives and friends who had a prior experience followed with 16% while the unique services and affordability were rated as 14%. Other factors such as referral by other physician and that the hospital is in the company profile of health facilities to seek medical attention shared 10% each.

4.3 Exploratory Data Analysis

The data was subjected to exploratory data analysis to elicit the blame of assumption of normality, multi-collinearity, linearity, homoscedasticity and to detect multivariate outliers and influential statistic. Composite/ latent variables were created from already observed/ manifest variables from the survey tool which were well researched from literature hence no need to perform exploratory factor analysis.

4.3.1 Missing data

A mandatory scenario for explanatory data analysis to continue is the completeness (no missing data) of the data. There are various ways of dealing with missing data. This is could be through estimation, deletion or missing data pair wise correlation matrix. Since the sample size is not too high the researcher assumed a non-random pattern in the data, the researcher considered using deletion despite the danger of over-fitting the data which may result to too high correlations.

4.3.2 Detecting Multivariate Outliers

Tabachnick and Fidell 2007, gave the following as the reasons for outliers

- Incorrect data entry
- Failure to specify missing value in the syntax hence missing values are read as real data
- Outlier is not a member of population that you intend to sample
- Outlier is representative of population you intended to sample but population has more extreme scores than a normal distribution.

To detect if a variable is multivariate outlier, one must know the critical value for which the Mahalanobis distance must be greater than. Using the criterion of alpha=0.001 with 15 degrees of freedom (equal to number of variables) the tabulated chi-statistic$\chi^2_{(0.99,15)}$=**30.578,** the maximum calculated chi-statistic$\chi^2_{(0.99,15)}$=**69.557.** Using the Mah_1 as the determining variable, the researcher did find outliers in the data and deleted the questionnaires with outliers.

Tabachnick & Fidell, 2007 gives the following options for dealing with outliers

- Delete variable that may be responsible for many outliers, especially if it is highly correlated with other variables in the analysis
- If you decide that cases with extreme scores are not part of the population you sampled, then delete them.

- If cases with extreme scores are considered part of the population you sampled, then a way to reduce the influence of a uni-variate outlier is to transform the variable to change the shape of the distribution to be more normal.
- Another strategy for dealing with uni-variate outlier is to "assign the outlying case(s) a raw scores on the offending variable that is one unit larger or smaller that the next most extreme score in the distribution" (Tabachnick & Fidell, 2007).
- Univariate transformations and score alterations often help reduce the impact of multivariate outliers but they can still be a problem. These cases are usually deleted (Tabachnick & Fidell, 2007).

4.3.3 Multi-collinearity and Singularity

Multi-collinearity occurs when independent variables are highly correlated. Conversely, Singularity occurs when there are redundant variables in your data set. If the determinant of *R* and eigenvalues associated with some factors approach 0, multi-collinearity or singularity may be in existence.

Table 4: Detecting multi-collinearity and singularity

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	201.167	40.268		4.996	0		
QS1	0.105	3.223	0.002	0.033	0.974	0.974	1.027
QS2	-1.702	3.279	-0.033	-0.519	0.604	0.944	1.059
QS3	-2.57	3.242	-0.051	-0.793	0.429	0.929	1.077
CS1	6.255	3.409	0.12	1.835	0.068	0.907	1.103
CS2	-5.817	3.233	-0.113	-1.799	0.073	0.974	1.027
CS3	-7.377	3.244	-0.147	-2.274	0.024	0.928	1.078
QT1	-5.95	3.282	-0.115	-1.813	0.071	0.969	1.032
QT2	-4.591	3.347	-0.088	-1.372	0.171	0.934	1.071
QT3	0.391	3.127	0.008	0.125	0.901	0.966	1.035
QT4	0.864	3.169	0.017	0.273	0.785	0.945	1.059
QL1	-3.225	3.217	-0.063	-1.002	0.317	0.982	1.018
QL2	-2.371	3.25	-0.047	-0.73	0.466	0.94	1.063
QL3	1.227	3.235	0.024	0.379	0.705	0.946	1.057
QL4	2.448	3.276	0.048	0.747	0.456	0.937	1.067
QL5	-2.889	3.353	-0.055	-0.862	0.39	0.954	1.048

Source: Author (2012)

Exploring the output on Table4, under collinearity statistics there is tolerance values for each variable. The tolerance values are expected to be high, closer to 1.0. Next, we want to explore SMCs (squared multiple correlations) of a variable where it serves as DV with the rest as IVs in multiple correlation (Tabchnick & Fidell, 2007). Since many programs, including PASW, convert the SMC values for each variable to tolerance (1 – SMC) and deal with tolerance instead of SMC, the researcher had to calculate the SMCs. SMCs is calculated as (1 – Tolerance). SMCs are expected to be low, closer to .00. If any of the SMCs are one (1), then singularity if present. If any of the SMCs are very large (i.e., near one), then multi-collinearity is present (Tabachnick & Fidell, 2007). In this scenario the tolerance and SMC values were within the expected range.

4.3.4 Normality

A Normal distribution is a statistical distribution in which data are represented graphically by a symmetrical bell-shaped curve, with the highest frequency in the middle and smaller frequencies towards the edges. Checking the normality of the distribution of a variable is very important because many statistical tests require the normality as a prerequisite.

The normality can be calculated in several ways;

- The simplest method of assessing normality is by producing a histogram. The most important things to look at are the symmetry and the peak of the histogram. A normal distribution should be represented by a bell-shaped curve.
- Another method of assessing the normality of a distribution is by producing the normal probability plot, P-P or Q-Q plot. For a normal distribution, the probability plot should show a linear relationship.
- It is also possible to use Kolmogorov-Smirnov test if your sample size is greater than 50 or Shapiro-Wilk test if sample size is smaller than 50. What you need to check on the table is the Sig. value. The convention is that a Significant value greater than 0.05 indicates normality of the distribution.

However, normality of variables enhances the solution (Tabachnick & Fidell, 2007). When the numbers of factors are determined using statistical inference, multivariate normality is assumed. "Normality among single variables is assessed by skewness and kurtosis" (Tabachnick & Fidell,

2007, p. 613) – and as such, the distributions of the 15 variables need to be examined for skewness and kurtosis. The Table 5 below gives the normality statistics of the variables

Table 5: Normality Statistics

	Valid	Missing	Mean	Std. Error of Mean	Std. Deviation	Variance	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
QS1	251	0	3.07	0.09	1.421	2.019	-0.085	0.154	-1.332	0.306
QS2	251	0	3.07	0.09	1.418	2.011	-0.026	0.154	-1.32	0.306
QS3	251	0	3.03	0.091	1.446	2.091	-0.033	0.154	-1.332	0.306
CS1	251	0	3.05	0.088	1.392	1.937	-0.075	0.154	-1.246	0.306
CS2	251	0	3.05	0.089	1.416	2.006	-0.111	0.154	-1.307	0.306
CS3	251	0	2.97	0.091	1.446	2.091	-0.007	0.154	-1.369	0.306
QT1	251	0	2.98	0.088	1.398	1.956	-0.044	0.154	-1.295	0.306
QT2	251	0	3.06	0.088	1.397	1.952	-0.09	0.154	-1.242	0.306
QT3	251	0	2.89	0.093	1.47	2.16	0.096	0.154	-1.384	0.306
QT4	251	0	2.94	0.093	1.467	2.152	0.05	0.154	-1.362	0.306
QL1	251	0	2.94	0.089	1.417	2.008	0.064	0.154	-1.319	0.306
QL2	251	0	3	0.091	1.434	2.056	0.008	0.154	-1.317	0.306
QL3	251	0	3.05	0.091	1.436	2.062	-0.06	0.154	-1.323	0.306
QL4	251	0	3.05	0.09	1.425	2.03	-0.068	0.154	-1.288	0.306
QL5	251	0	2.91	0.087	1.38	1.904	0.094	0.154	-1.236	0.306

Source: Author (2012)

4.3.4.1 Standard Deviation

The **standard deviation** is a measure of dispersion that is calculated based on the values of the data. It allows us to see how widely the data are dispersed around the mean. The standard deviation has the desirable property that, when the data are normally distributed, 68.3 % of the observations lie within +/- 1 standard deviation from the mean, 95.4% within +/- 2 standard deviations from the mean and 99.7 % within 3 standard deviations from the mean.To state that the data are normally distributed simply means that the distribution of the data resembles a bell-shaped curve; in such a case, most of the observations are clustered around the mean. In reality, it is rare to find data that is perfectly normally distributed, but they might appear to be somehow close to a normal distribution. Two statistics will help us determine whether this is the case namely skewness and kurtosis.

4.3.4.2 Skewness

A distribution that is not symmetric but has more cases (more of a "tail") toward one end of the distribution than the other is said to be **skewed** (Norusis, 1994). It is a measure of whether the peak is centered in the middle of the distribution. A positive value means that the peak is off to the left, and a negative value suggests that it is off to the right.

- Value of 0 = normal
- Positive Value = positive skew (tail going out to right)
- Negative Value = negative skew (tail going out to left)

By dividing the skewness statistic by its standard error, the value you get evaluates whether this standard score value significantly departs from normality. Concern arises when the skewness statistic divided by its standard error is greater than $z = +3.29$ ($p < .001$, two-tailed test) (Tabachnick & Fidell, 2007).To illustrate this, the researcher calculated the standardized skewness of one item labeled *QS1*and provided the following information. Keep in mind, that you would do this for each of the 15 items.

e.g. "QS1"(-0.08/0.154=**-0.55)** which signifies that the skewness significant as it is less than $z = +/-3.29$ ($p < .001$, two-tailed test).

4.3.4.3 Kurtosis

This is a measure of the extent to which data are concentrated in the peak versus the tail. A positive value indicates that data are concentrated in the peak; a negative value indicates that data are concentrated in the tail. Values of skewness and kurtosis have little inherent meaning, other than large values indicate greater asymmetry. A rule of thumb is that the absolute value of the ratio of skewness to its standard error and of kurtosis to its standard error should be less than 2. Large ratios indicate departure from symmetry.

- Value of 0 = mesokurtic (normal, symmetric)
- Positive Value = leptokurtic (shape is more narrow, peaked)
- Negative Value = platykurtic (shape is more broad, widely dispersed, flat)

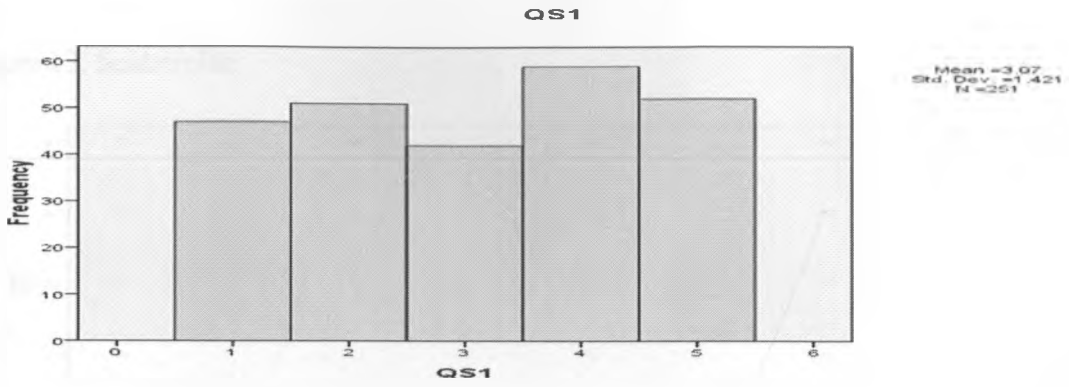
By dividing the kurtosis statistic by its standard error you will know if this standard scores value significantly departs from normality. Concern arises when the kurtosis statistic divided by its standard error is greater than $z = +3.29$ ($p < .001$, two-tailed test) (Tabachnick & Fidell, 2007).

e.g. "qs1" -1.332/0.306=**-4.353** which signifies that the skewness is significant as it is greater than $z = +/-3.29$ ($p < .001$, two-tailed test).

Overall, many of the variables are negatively skewed and a few are positively skewed.

The associated Figure10 is the histogram which is shows how skewed QS1 (used as example above) departs from normality.

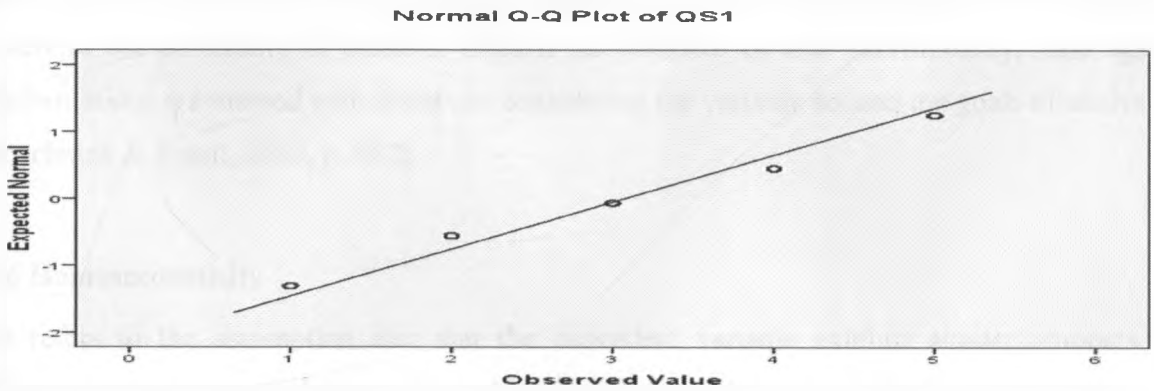
Figure 10: Explanation of Skewness of 'QS1'



Source: Author (2012)

The above result is confirmed by the histogram and the normal probability plot, the histogram does not present a symmetrical distribution, it has a long tail towards the right. Using the same variable 'QS1' to do the Q-Q Plots as shown in the Figure11 the Q-Q plots are as follows.

Figure 11: The Q-Q plot for QS1

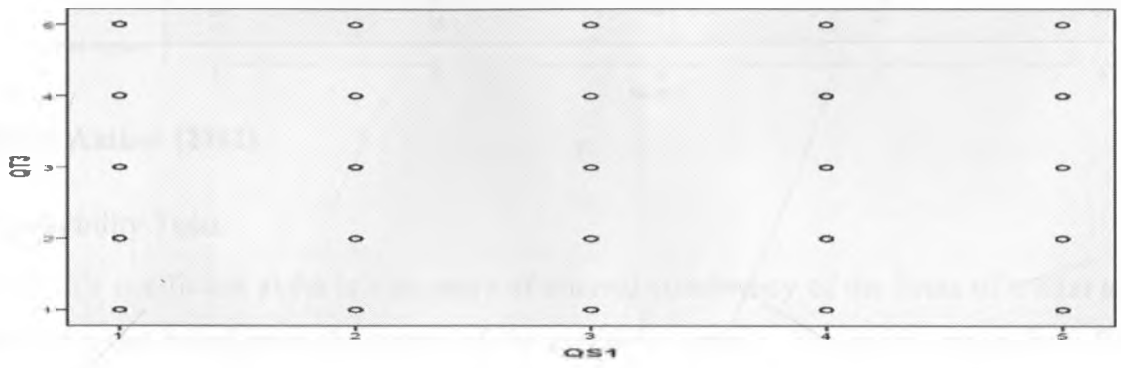


Source: Author (2012)

4.3.5 Linearity

Multivariate normality implies linearity, so "linearity among pairs of variables is assessed through inspection of scatterplots" (Tabachnick & Fidell, 2007, p. 613). With 15 variables, however, examination of all pair wise scatterplots (about 200 plots) is impractical. Therefore, to spot check for linearity, the researcher wished to examine qs1 (with strong negative skewness) and QT3 (with strong positive skewness).

Figure 12: Scatterplot



Source: Author (2012)

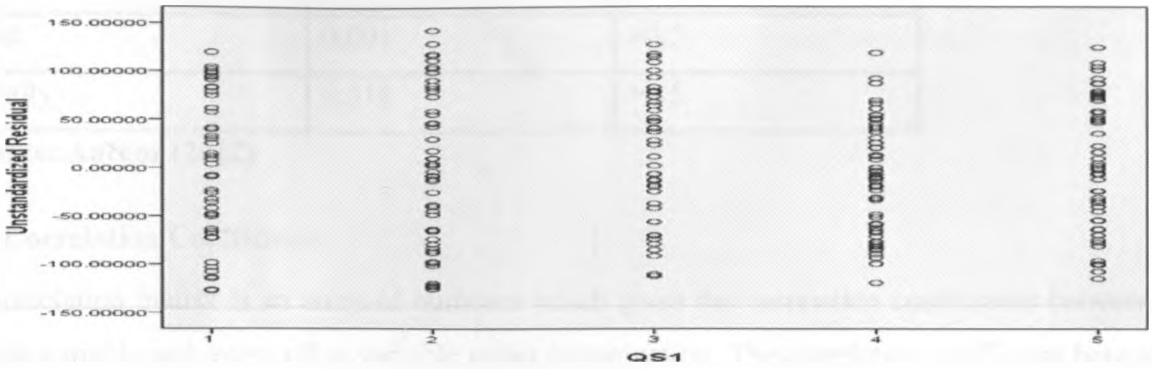
The scatterplot showed a balanced spread of scores. According to Tabachnick and Fidell (2007), when assessing bivariate scatterplots if they are oval-shaped, they are normally distributed and linearly related. Although the plot is far from pleasing, it does not show departure from linearity as well as the possibility of outliers, there is no evidence of true curvilinearity. And again, transformations are viewed with disfavour considering the variable set and the goals of analysis" (Tabachnick & Fidell, 2007, p. 652).

4.3.6 Homoscedasticity

This refers to the assumption that that the dependent variable exhibits similar amounts of variance across the range of values for an independent variable. Also it is the assumption that the variability of data around the regression line be constant for all values of X. In other words, error must be independent of X. Generally, this assumption may be tested by plotting the X values

against the raw residuals for Y. In PASW, this must be done by plotting a scatterplot from the saved variables:

Figure 13: Scatter plots of QS1



Source: Author (2012)

4.4 Reliability Tests

Cronbach's coefficient alpha is a measure of internal consistency of the items of a total test or scales of a test based upon the scores of the particular sample. The scores range from 0 to 1. Scores on the higher range of the scale (>.70) suggest that the items of the total test or scales are measuring the same thing. The Cronbach'salpha of these variables as shown in Table 6 is quite high. This depicts that there is high internal consistency within the tested variables.

Table 6: Cronbach's alpha

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.783	.827	15

Source: Author (2012)

The Cronbach's Alpha=**0.827** which is very high and tends to 1. This shows a strong internal relationship within the variables tested in the data and suggests that they are measuring the same thing. However it is very advisable to evaluate the Cronbach's Alpha for each factor to check on the internal consistency of the variables. The summarized Table 7 indicates the Cronbach's alpha for the 15 individual factors. This is very high ranging from 0.462 to 0.77, depicting very high internal consistency with the variables under each endogenous/ unobserved variable.

Table 7: Standardised Cronbach Alpha for the constructs

Factor	Construct reliability	Recommended value
Quality Service	0.77	>0.5
Customer satisfaction	0.462	>0.5
Trust	0.601	>0.5
Loyalty	0.518	>0.5

Source: Author (2012)

4.5 Correlation Coefficients

A correlation matrix is an array of numbers which gives the correlation coefficients between a single variable and every other variable under investigation. The correlation coefficient between a variable and itself is 1 and thus the principal diagonal of the correlation matrix contains 1s.With correlation matrix two things are necessary; the variables need to be inter-correlated but they should not correlate too highly (extreme multi-collinearity and singularity) as this would cause difficulties in determining the unique contribution of the variables to a factor (Field 2000:457).

The correlation is a way to measure how associated or related two variables are. The purpose of doing correlations is to allow us to make a prediction about one variable based on what we know about another variable. Correlations, whether positive or negative, range in their strength from weak to strong. Positive correlations will be reported as a number between 0 and 1. A score of 0 means that there is no correlation (the weakest measure), whereas, a score of 1 is a perfect positive/ negative correlation, which does not really happen in the "real world". Corr (QualS,CustS) =0.575** at α=0.01. In simpler terms, as quality service increases the customer satisfaction also will significantly increase by57.5%. From the Table 8 below the correlation coefficient area all significant at α=0.01 and ranges from 0.423 to 0.575.

Table 8: Correlation statistics

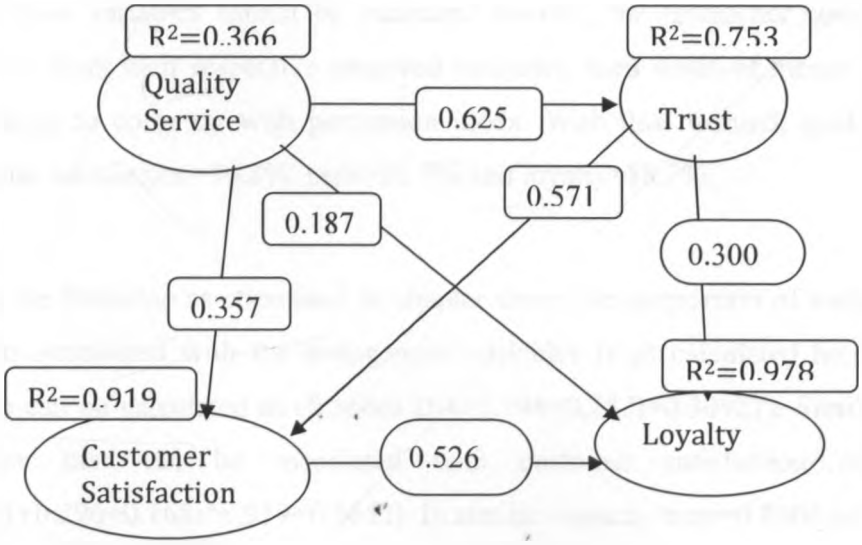
		Correlations					
	Mean	N	Std. Deviation	Quality Service	Customer Satisfaction	Trust	Loyal
Quality Service	4.8154	251	0.37359				
Customer Satisfaction	4.5392	251	0.57707	.575**			
Trust	4.6335	251	0.41847	.499**	.506**		
Loyal	4.4367	251	0.42134	.423**	.450**	.452**	1
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: Author (2012)

4.6 Model Specification and Fitting

The researcher exported the data to AMOS version 17.0.2 for model fitting and validation. There is quite a number of goodness of fit statistics that can be employed to find out whether the model fits the data well. This goodness of fit statistics has been dealt with in the chapter three. The criteria for the cut-off points have always been the rule of thumb conventionally. Since the AMOS output is bulky, the results are at the appendix. Similarly for the purposes of visual clarity, and since that the fit model is quite busy; the researcher inserted the regression weights and communalities as they appear from the AMOS model in the theoretical.

Figure 14: Fully identified model



Source: Author (2012)

The goodness of fit statistics for the above Figure 14 fully identified model (Formative constructs) are as shown in Table 9. This Chi-square tests the null hypothesis that the over-identified (reduced) model fits the data as well as does a just-identified (full, saturated) model. The significant Chi-square as indicated here depicts that the fit between our over-identified model and the data is significant. A good fitting model is one that can reproduce the original variance-covariance matrix (or correlation matrix) from the path coefficients, in much the same way that a good factor analytic solution can reproduce the original correlation matrix with little error. The other fit indices for this as shown in the Table 9 are all above the recommended threshold and therefore the model is a good fit for the data.

Table 9: Model fit indices for the measurement level

Model fit indices	Results	Recommended value
Chi-statistic,p-value cmin/df	CMIN=118.569; df =68; p-value=0.00CMIN/DF=1.744	P-value >0.05 CMIN/DF<3.0
Goodness of fit index, GFI	GFI=0.937	GFI>=0.8
Adjusted goodness-of-fit index AGFI	AGFI=0.888	AGFI>=0.8
Comparative Fit Index CFI	CFI=0.937	CFI>=0.8
Root Mean Square Error of Approximation, RMSEA	RMSEA=0.05	0.05 Excellent 0.05 to 0.08 Good 0.08 to 0.10 Acceptable

Source: Author (2012)

Since these variables cannot be measured directly, the researcher computed these composite variables from their respective observed variables, their mean of means can be commuted to a percentage to come up with perception index. With this in mind, quality of service =96.3%, customer satisfaction=90.8%, trust=92.7% and loyalty=88.7%.

Using the formulae as stipulated in chapter three, the proportion of variance due to regression weights associated with the endogenous variables is as calculated herewith. With quality of service can be calculated as (0.366(0.264+0.294+0.287)=0.30927). Similarly, the proportion of variance that can be associated with customer satisfaction due to regression is ((0.151+0.296+0.168)*0.919=0.5652). In similar capacity trust=0.8004 while loyalty=0.4821.

In this next step, the very endogenous variables become the explanatory variables to the response variables. In this respect, to understand how well each endogenous variable related to the response variable (endogenous) the researcher invoked the same formulas and computed the extent to which quality of service impacted on Trust. (0.366*0.625=0.22875). This basically means that Quality of service will influence patient developing trust by 22.88%.Similarly quality service will influence (0.366*0.357=0.13066) to imply that quality service will impact 13.07 % on customer satisfaction. Also looking at the relationship between quality of service and loyalty, (0.366*0.187=0.1166) which in layman's language implies that quality service will only influence the patients to develop loyalty by 11.66%. On evaluating the element of trust and its relationship with loyalty, the researcher computed a value (0.753*0.300=0.2259) which can be translated to mean that after a patient have developed trust in the clients quality services, the patient trust will influence 22.59% of loyalty. On the same context, trust and customer satisfaction has a relationship such that (0.753*0.571=0.4299). This means that after patient has developed trust with the quality services provided, the patient develops a satisfaction level 42.99%. On the same context, customer satisfaction will influence 48.34% (0.919*0.526=0.4834) of loyalty. Overall by evaluating the three unobserved variables and their impact on loyalty, ((0.366*0.187) + (0.753*0.300) + (0.919*0.526)=0.7777). This means that the three unobserved variables will cumulatively influence the patient to develop loyalty by 77.77%.

Do note that the parameters are estimated by maximum likelihood (ML) methods rather than by ordinary least squares (OLS) methods. OLS methods minimize the squared deviations between values of the criterion variable and those predicted by the model. ML (an iterative procedure) attempts to maximize the likelihood that obtained values of the criterion variable will be correctly predicted.

4.7 Hypothesis Testing

The hypothesized relationships were tested using the multiple regression analysis. The average scores of the items representing each construct were used as to calculate the composite variables which are used in the data analysis. The R^2 was used to assess the model's overall predictive fit. The proportion of variance that can be accounted for by the regression=0.536. The resulting

ANOVA table gives a significant p-value=0.000 while $F_{(0.99,3,247)}$=33.144, hence we fail to reject the null hypothesis that the null model fits the regression model.

Based on the regression coefficients as shown in the Table 10 below, and using Loyalty as the dependent variable on quality of service, customer satisfaction and trust, the regression coefficient between Loyalty and Quality of service is has a positive significant statistical relationship with β=0.165, p-value=0.017 at α=0.005 95% CI=0.974 to 2.226.Since none of the values for the regression slope is zero, the posited hypothesis, H3is supported. Similarly the relationship between Loyalty and customer satisfaction has the regression coefficient of β=0.226, p-value=0.001 at α=0.005 95% CI=0.066 – 0.265. This implies that the posited hypothesis, H4 is supported. On the third element called trust, the regression coefficient of β=0.255, p-value=0.000 at α=0.005 95% CI=0.127 – 0.386, therefore the posited hypothesis H6 is as well supported.

Table 10: Regression coefficients

Coefficients(a)							
	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
(Constant)	1.6	0.318		5.034	0.000	0.974	2.226
QualS	0.186	0.078	0.165	2.402	0.017	0.034	0.339
CustS	0.165	0.05	0.226	3.282	0.001	0.066	0.265
Trust	0.257	0.066	0.255	3.912	0.000	0.127	0.386
a. Dependent Variable: Loyal							

Source: Author (2012)

Other regression slopes for the H1, H2 and H5 will be carried out in a similar way though their resulting regression coefficient table results are in the appendix. On using Customer satisfaction as dependent variable to Quality of service, the R^2=0.575 with the p-value of the regression model=0.00. The regression coefficients β=0.575, p-value=0.000 at α=0.005 95% CI=0.730 – 1.046, therefore the H1, is supported.

On the hypothesis H2, the researcher uses the trust as the dependent variable on quality of service, the resulting regression coefficients are the R^2=0.499 with the p-value of the regression

model=0.000. The regression coefficients β=0.499, p-value=0.000 at α=0.005 95% CI=0.438 – 0.680, therefore the H2, is supported.

On the hypothesis H5, the researcher uses the customer satisfaction as the dependent variable on trust, the resulting regression coefficients are the R^2=0.509 with the p-value of the regression model=0.000. The regression coefficients β=0.506, p-value=0.000 at α=0.005 95% CI=0.549 – 0.849, therefore the H5, is supported.

4.8 Chapter Summary

This chapter has shown the data results in form of bar-charts and tables. The corresponding coefficients of the variable relationships were subjected to the set rule of thumb. The posited hypotheses have been tested with respect to their status.

CHAPTER FIVE

DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.0 Overview

This chapter describes the procedures and methods used in carrying out the research. The design has been discussed with the aim of defining, identifying and justifying the design used. The population, sample characteristics and size is provided and has been discussed. It also highlights the methods and data collection instruments used. The key steps taken and research procedures, method of data collection, schedules and timing are also covered. Quantitative findings are collected using questionnaires survey while qualitative findings are collected from information gathered from the interviews in verbatim. Finally a summary of the chapter gives a conclusion to the key issues that are discussed in the chapter.

5.1 Discussions

Conventional wisdom holds that to increase loyalty, companies must delight customers by exceeding service expectations. What customers really want (but really get) is just a satisfactory solution to their service issue. The idea that companies must delight their customers has become so entrenched that the managers rarely examine it. But ask yourself this: How often does someone patronize a company specifically because of its over-the-top-service? You can probably think of a few examples, such as the traveller who makes a point of returning to a hotel that has a particularly attentive staff. The answer could be you probably can't come up with many.

Now ask yourself: How often do customers cut companies loose because of terrible service? All the time could the answer. They exact revenge on airlines that lose their bags, cable providers whose technicians keep them waiting, cellular companies whose their representatives put them on permanent hold and dry cleaners who don't understand what 'rush orders" mean. Consumers' will impulse to punish bad service at least more readily than to reward delightful service. Companies will however create loyal customers primarily by helping them solve their problems quickly and easily. Making it easy here means to remove the obstacles.

The researcher has empirically validated the existing customer trust and loyalty model in healthcare environment akin to other theories into the newly emerging context of e-service, which has become available and popular only recently. This study investigated the direct effects of quality service, customer satisfaction, trust, on loyalty, and examined the indirect effects of customer satisfaction, and trust on loyalty. Integrating these perspectives and empirically examining the factors that build customer loyalty in a healthcare context advances our understanding of these constructs and their linkage to repeat Web purchase behaviour. The results suggest that quality service, trust, customer satisfaction are separate constructs that combine to determine the purchase loyalty, with attitudinal customer satisfaction exerting a stronger influence than trust. While quality of service is directly related to loyalty, it is also indirectly related to loyalty through customer satisfaction and trust. These finding suggests that customer satisfaction and trust plays a crucial intervening role in the relationship of quality of service and loyalty.

One of the prime objectives of this study was to examine service quality in the context of multi-variables. Service quality has been measured using the three variables which were well researched from literature. Quality service is as discussed in the literature review remains quite a debatable element since none is tangible. Quality service can only be metricized by allowing multifaceted attributes which would be linked to it. In this study, the three variables have (QS1 to QS3) have shown almost the same regression weights to the unobserved variable, quality service. By evaluating their correlation coefficients, corr (qs1,qs2=0.637**) which is significant at α=0.001, two tailed test, This can be interpreted to mean that an increase in QS1 will lead to an increase in QS2 by 63.7%, similarly corr (Qs1,Qs3=0.500**) is significant at α=0.001, two tailed test and also corr(Qs2,Qs3=0.444** at α=0.001, two tailed test). Based on these correlation coefficients, there is strong relationships among the variables deemed fit to measure quality of service. All the posited hypotheses were well empirically tested with all of them being supported. Their criterion region was as well provided and the required statistics provided.

5.2 Conclusions

This research is a response to the call for customer loyalty research in the healthcare environment context. Utilizing the proposed loyalty model as a theoretical framework, the direct and indirect influences of customer satisfaction and trust on loyalty were observed. The

contributions of this study to customer loyalty research are twofold. First, it has successfully applied the traditional conceptualization of customer loyalty in a healthcare environment context that is different from the marketplace examined in prior studies. Second, quality service, customer satisfaction and trust were found to be important determinants of purchase loyalty. The findings of this study have implications for e-service managers to develop their customer loyalty. Considering the millions of dollars that have been invested in healthcare environment, it is of paramount importance to ensure that customers will show loyalty. In order to achieve this goal, attention must be placed in developing a quality, satisfying and trustworthy healthcare environment.

5.3 Recommendations

The results of this study encourage customer loyalty managers to include measures of quality service, customer satisfaction and trust into present customer loyalty valuation techniques. The present study has attempted to show the reliability and validity of the measures and has also provided some useful measures of these constructs.

To meet customers' expectations, the company representatives should anticipate and head off the need for follow-up calls, address the emotional distress incurred during the interactions, minimize the need for customers to switch service channels, listen to and learn from disgruntled customers and focus on problem solving.

5.4 Further Research

The researcher would wish to take this research further and examine the mediating effects of quality of service and Trust to customer satisfaction on customer loyalty. In the same respect by using the Dawson's interaction plots and borrowing from Mediating and moderating effects, this task can be easily accomplished.

5.5Chapter Summary

This chapter has explicitly given the discussion of the results and have highlighted the key significant findings. The summarized hypothesis and their rejection, failure to reject status were also elaborated.

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Appendix

Appendix I: Letter of Introduction

University of Nairobi

School of Mathematics

Dear respondent,

RE: REQUEST FOR FILLING OF OUESTIONNAIRE

My name is Mahuro Gerald Mbuthia and I am pursuing a Master's of Science degree in Statistics at the University of Nairobi. I am doing research on how various factors such as perceived Quality of Service, Trust and Customer satisfaction influence Customer loyalty to patients who seek medical care in Aga Khan University Hospital, Nairobi.

You have been randomly selected to participate in this research and your participation is voluntary. I am requesting you to fill the attached questionnaire. This research is purely for academic purposes only and the information given will be strictly confidential. Your opinions will be combined together with others such that the final report will not peg on individual responses.

Thank you very much for participating in this research.

May Almighty God Bless You.

Thanks in advance.

Mahuro Gerald Mbuthia

Reg No: I56//64234/2010

Appendix II: The Questionnaire

This Hospital is committed to providing the highest quality of care to all patients and their families. The most effective way of measuring our success in reaching this goal is to learn about ourselves from you – our patients. Would you please take 3 to 8 minutes to complete this questionnaire? Please feel free to be honest in answering:

Section A: Demographics

Please tick one option per statement that best fits your opinion

1. Gender ☐ Male ☐ Female
2. Patient Status ☐ Corporate ☐ Self
3. Please indicate your nationality ☐ Kenyan ☐ Non- Kenyan
4. Age ☐ 0 to 15 ☐ 16 to 25 ☐ 26 to 40 ☐ 41 to 60 ☐ Over 60
5. What was your purpose of coming to the hospital
   - ☐ Appointment to see a doctor at outpatient clinic
   - ☐ To see a doctor at the casualty
   - ☐ Emergency
   - ☐ Booking an appointment
   - ☐ Others Please specify_____
6. Please indicate the appropriate reasons why you chose Aga Khan University Hospital as your health care provider **(Please tick as many as it applies)**
   - ☐ Doctor of choice
   - ☐ Accessibility/ Location
   - ☐ Referral by another physician
   - ☐ Hospital on company profile
   - ☐ Affordability
   - ☐ Relatives/ friends recommendation
   - ☐ Unique services
   - ☐ Others_____

Section B: Trust – Loyalty Model

	Strongly agree	Agree	Average	Disagree	Strongly disagree
Based on my past experience with the AKUH,N,					
T1. I know it is not opportunistic.....	☐	☐	☐	☐	☐
T2. I know it cares about customers.....	☐	☐	☐	☐	☐
T3. I know it is honest.....	☐	☐	☐	☐	☐
T4. I know it is predictable.....	☐	☐	☐	☐	☐
CS1. I am satisfied with the healthcare services offered by AKUH, N...	☐	☐	☐	☐	☐
CS2. I am proud of the services provided by the AKUH, N	☐	☐	☐	☐	☐
CS3. The AKUH, N has met my expectations.....	☐	☐	☐	☐	☐
QS1. The services provided by the AKUH, N is high standards.....	☐	☐	☐	☐	☐
QS2. Considering what I would pay for services at AKUH, N, I will get much more than the worth of my time, effort and money.....	☐	☐	☐	☐	☐
QS3. Based on simultaneous considerations of what I received and what I end up receiving it; I consider the service to be valuable.	☐	☐	☐	☐	☐
L1. Even if close friends recommended another healthcare provider, I would not change my preference for this AKUH, N.....	☐	☐	☐	☐	☐
L2. I will seek healthcare from AKUH, N the next time I need the service..	☐	☐	☐	☐	☐
L3. I intend to keep seeking healthcare services from this AKUH, N.....	☐	☐	☐	☐	☐
L4. In the future, I would choose AKUH, N again	☐	☐	☐	☐	☐
L5. Even with price increases/ decrease I will still seek the AKUH,N servic	☐	☐	☐	☐	☐

Thank you very much for your effort in filling in this questionnaire.

My God Bless You.

Appendix III:The default Model

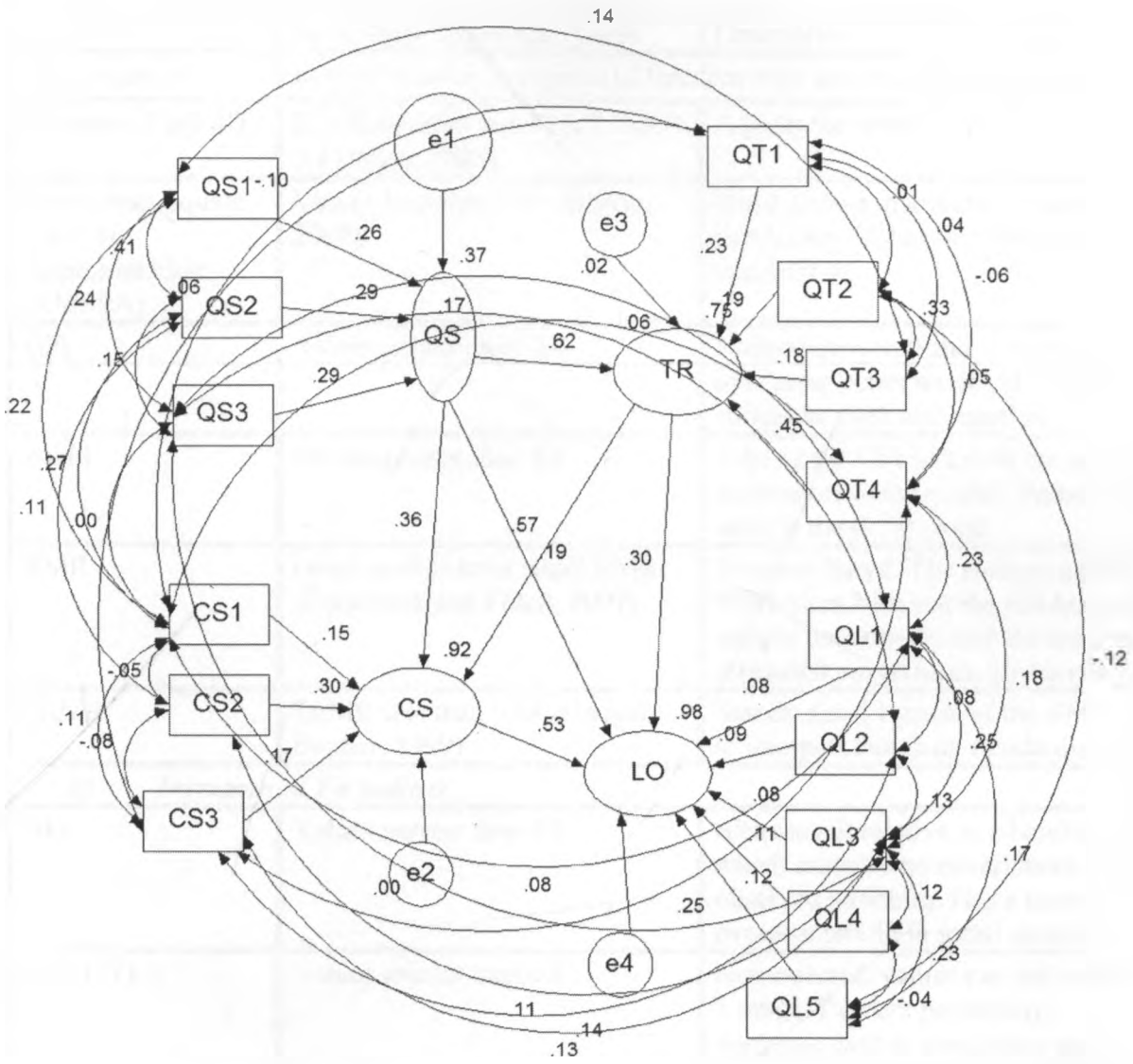

Figure 15: The fully identified Default Model

Appendix IV: Fit indices and their acceptable thresholds

i) Absolute Fit Indices		
Fit Index	Acceptable Threshold Levels	Description
Chi-Square $\chi 2$	Low $\chi 2$ relative to degrees of freedom with an insignificant p value ($p > 0.05$)	
Relative $\chi 2$ ($\chi 2$/df)	2:1 (Tabachnik and Fidell, 2007) 3:1 (Kline, 2005)	Adjusts for sample size.
Root Mean Square Error of Approximation (RMSEA)	Values less than 0.07 (Steiger, 2007)	Has a known distribution. Favours parsimony. Values less than 0.03 represent excellent fit.
GFI	Values greater than 0.8	Scaled between 0 and 1, with higher values indicating better model fit. This statistic should be used with caution.
AGFI	Values greater than 0.8	Adjusts the GFI based on the number of parameters in the model. Values can fall outside the 0-1.0 range.
RMR	Good models have small RMR (Tabachnik and Fidell, 2007)	Residual based. The average squared differences between the residuals of the sample covariances and the residuals of the estimated covariances. Unstandardised.
SRMR	SRMR less than 0.08 (Hu and Bentler, 1999)	Standardised version of the RMR. Easier to interpret due to its standardised nature.
ii) Incremental Fit Indices		
NFI	Values greater than 0.8	Assesses fit relative to a baseline model which assumes no covariances between the observed variables. Has a tendency to overestimate fit in small samples.
NNFI (TLI)	Values greater than 0.8	Non-normed, values can fall outside the 0-1 range. Favours parsimony. Performs well in simulation studies (Sharma et al, 2005; McDonald and Marsh, 1990)
CFI	Values greater than 0.8	Normed, 0-1 range.

Table 11: Fit indices and their acceptable thresholds

Appendix V: Model Estimates

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
QS	<---	QS2	.294
QS	<---	QS3	.287
QS	<---	QS1	.264
TR	<---	QT1	.232
TR	<---	QT3	.185
TR	<---	QT4	.453
TR	<---	QS	.625
TR	<---	QT2	.193
CS	<---	CS1	.151
CS	<---	CS2	.296
CS	<---	CS3	.168
CS	<---	QS	.357
CS	<---	TR	.571
LO	<---	QL2	.093
LO	<---	QL3	.078
LO	<---	TR	.300
LO	<---	CS	.526
LO	<---	QS	.187
LO	<---	QL5	.123
LO	<---	QL1	.085
LO	<---	QL4	.114

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
QS2	<-->	QS3	.020	.010	2.014	.044	
CS1	<-->	CS3	.034	.021	1.613	.107	
CS1	<-->	CS2	-.026	.036	-.740	.460	
CS2	<-->	CS3	-.048	.040	-1.205	.228	
QT1	<-->	QT3	.006	.013	.507	.612	
QT1	<-->	QT4	-.026	.027	-.954	.340	
QT4	<-->	QT2	.017	.020	.841	.400	
CS3	<-->	QT4	.134	.036	3.672	***	
QT4	<-->	QL1	.117	.034	3.425	***	
CS1	<-->	QT1	-.026	.016	-1.560	.119	

			Estimate	S.E.	C.R.	P	Label
QT4	<-->	QL3	.087	.030	2.930	.003	
QT3	<-->	QS1	.017	.007	2.346	.019	
CS1	<-->	QT4	.082	.031	2.659	.008	
QL3	<-->	QL1	.076	.020	3.715	***	
QL3	<-->	QL5	.099	.028	3.560	***	
QL5	<-->	QL1	.080	.031	2.595	.009	
QT3	<-->	QT2	.048	.012	4.078	***	
QL5	<-->	QT2	-.039	.019	-2.027	.043	
QS2	<-->	QS1	.051	.010	5.077	***	
QS3	<-->	QS1	.029	.009	3.220	.001	
QS3	<-->	CS1	-.001	.014	-.038	.969	
QL2	<-->	QL3	.043	.021	2.028	.043	
QL2	<-->	QL1	.027	.023	1.170	.242	
CS3	<-->	QT1	.017	.019	.868	.385	
QS2	<-->	CS1	.053	.015	3.467	***	
CS1	<-->	QS1	.039	.013	2.928	.003	
QL3	<-->	QL4	.049	.025	1.976	.048	
QL5	<-->	QL4	-.026	.040	-.651	.515	
CS3	<-->	QL2	.051	.025	2.040	.041	
QT1	<-->	QT2	.001	.013	.100	.921	
QS3	<-->	QL3	.001	.012	.050	.960	
CS3	<-->	QL3	.040	.020	2.000	.046	
QS2	<-->	CS2	.043	.024	1.820	.069	
QS3	<-->	QL2	.014	.015	.941	.347	
QS3	<-->	QL1	.005	.013	.361	.718	
CS2	<-->	QL3	.058	.033	1.730	.084	
CS1	<-->	QL1	.024	.019	1.293	.196	

Squared Multiple Correlations: (Group number 1 - Default model)

			Estimate
QS			.366
TR			.753
CS			.919
LO			.978

Appendix VI: Model Fit Indices

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	52	118.569	68	.000	1.744
Saturated model	120	.000	0		
Independence model	15	271.532	105	.000	2.586
Zero model	0	1875.000	120	.000	15.625

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.095	.937	.888	.531
Saturated model	.000	1.000		
Independence model	.119	.855	.834	.748
Zero model	.225	.000	.000	.000

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.563	.326	.752	.531	.937
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.648	.365	.451
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	50.569	24.177	84.821
Saturated model	.000	.000	.000
Independence model	166.532	121.635	219.107

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.474	.202	.097	.339
Saturated model	.000	.000	.000	.000
Independence model	1.086	.666	.487	.876

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.055	.038	.071	.309
Independence model	.080	.068	.091	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	222.569	229.681	405.893	457.893
Saturated model	240.000	256.410	663.054	783.054
Independence model	301.532	303.583	354.414	369.414
Zero model	1875.000	1875.000	1875.000	1875.000

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.890	.785	1.027	.919
Saturated model	.960	.960	.960	1.026
Independence model	1.206	1.027	1.416	1.214
Zero model	7.500	6.954	8.076	7.500

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	187	207
Independence model	120	131
Zero model	20	22