

**THE EFFECT OF SERVICE QUALITY ON PATIENT  
SATISFACTION; IN CASE OF DENEBA HOSPITAL**



**COLLEGE OF BUSINESS AND ECONOMICS  
DEPARTMENT OF MANAGEMENT**

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**DEBRE BERHAN UNIVERSITY  
COLLEGE OF BUSINESS AND ECONOMICS  
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**THE EFFECT OF SERVICE QUALITY ON PATIENT  
SATISFACTION; IN CASE OF DENEBA HOSPITAL**

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**THESIS APPROVAL**

As members of board examiners of the final MBA thesis open defense examination, we certify that we have read and evaluated the thesis prepared by **Ejigayehu Bogale** entitled “*The Effect of Service Quality on Patient Satisfaction: In Case of Deneba Hospital in Deneba Town*”. We recommend that thesis be accepted as fulfilling the thesis requirement for the degree of masters of business administration.

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## **DECLARATION**

I, the undersigned declare that, this research entitled “*The Effect of Service Quality on Patient Satisfaction: In Case of Deneba Hospital in Deneba Town*” is the outcome of my own effort and all sources of materials used for this study have been duly acknowledged. I have produced it independently except for the guidance and suggestion of the research advisor. This study has not been submitted for any degree in this university or any other university. It is offered for the partial fulfillment of the master of art in business administration (MBA).

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**LETTER OF ENDORSEMENT**

As Thesis Research advisor, I hereby certify that I have read and evaluated this thesis prepared, under my guidance, by **Ejigayehu Bogale** entitled “*The Effect of Service Quality on Patient Satisfaction: In Case of Deneba Hospital in Deneba Town*”. I recommended it to be submitted as fulfilling the thesis requirement for the degree of master’s in business administration.

**Name:** DEJENE TULU (PhD)

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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## **Abstract**

Customer satisfaction is meeting the customer expectations of products and services by comparing with the perceived performance. If the perceived performance matches customer expectations of services, they are satisfied. If it does not, they are dissatisfied. The purpose of this study was to investigate the effect of service quality on patient satisfaction in case of Deneba Hospital. The data was collected from employee and patients through questionnaire. By using a simple random sampling technique 399 participants or respondents were selected to conduct the study. And also data analysis was done with the help of SPSS 23 statistical software. Both the multiple linear regression result and Pearson correlation coefficient displayed that the points of service quality namely Tangibility, Reliability have a positive and statistically significant effect on patient satisfaction whereas Responsiveness, Assurance, Empathy, have negative and statistically significant effect on patient satisfaction. This study also recommended that health sector organizations especially Deneba hospital should give greater importance in improving service quality of their patients so as to increase their productivity and quality of service.

**Key Words:** patient satisfaction, Responsiveness, Assurance, Empathy, Reliability, Tangibility

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# CHAPTER ONE

## 1. INTRODUCTION

Service quality is one of the internal factors that need improvement for the purpose of betterment and advancement of hospital management system that led to maximum performance. The hospital is a health care business based on the principle of trust; thus, service quality, patient satisfaction and loyalty of patients determine their success. In business services, service quality affected service user's decision. Outstanding service quality had an impact on customer satisfaction. One of the competitive advantages

The other important concept in service delivery system is service quality which can be defined as superiority or excellence (Zeithaml, 1988). Quality service is defined as the situation in which the consumer's perception of service performance meets or exceeds their expectation of what the service firm should do. The key to service quality then is to meet or exceed consumer expectations (Girum et al., 2018). The concept of quality in organizations has been around for many years and is poised to continue to develop in meaning. After the 1980s, Total Quality Management (TQM) only increased in popularity and became practiced in a number of western firms in the late 20th century.

In this study, there will a gap of research in deneba Hospital decline number of inpatients caused by several factors, among others: (1) number of inpatients rooms in deneba hospital are limited, so if there is a patient who wants to hospitalization but no room empty, then the patient referred to another hospital; (2) if there are in patients who died so prospective inpatients others may not directly used the room because it must be sterilized and the processed lasts for 6 hours; (3) visits specialists who are not on time so that many patients are forced to postpone his return. In previous studies there is a literature that examines the impact of service quality on satisfaction,

So it still had limitations both facilities and infrastructure that support the needs of patients. deneba Hospital start to improve service quality to achieve and toward accreditation. Services quality of deneba Hospital, among others such as: medical or non-medical personnel performed health checks with fast and accurate results, the medical officer or non-medical services rendered polite and friendly. Those service quality parameters that must achieved to maintained and increased patient loyalty. One of the main ways to maintained

patient satisfaction is to provide health services of consistently high quality to meet consumer expectations that increased patient loyalty. Deneba Hospital made progress of safety patient to improve the service quality. Visits specialists who were not on time so that many patients felt unsafe and guilty. Deneba Hospital need to improve and developed the safety patient system. If the safety patient quality is high so that service quality became outstanding. In addition, to minimize the patient's complaints against service quality by improved the management system in the hospital. The doctors, nurses, administrative staff and other staff improved performance and discipline as a dedication to their profession. Local authorities were expected to provide an adequate budget to supported infrastructure and improved the service quality of hospital. From the explanation above, this study aims to identify and examined (1) the effect of service quality on patient satisfaction; (2) the effect of patient satisfaction with loyalty; (3) The effect of service quality on loyalty. From the data obtained Deneba Hospital decreased the number of patients caused by several things related to service quality. Researchers had observations and the results found that some patients complain of the slow handled of the clerk to go into the wards, doctors often not there, when patients required the services of a doctor's consultation health problems. The number of nurses who performed duties at night less than the nurses who performed tasks in the morning or evening. Furthermore, there are some patients complained about the cleanliness of the facilities at the hospital. Conclusion the results of the observation by the above statement that patients who complain indicated of patient dissatisfaction with service quality provided in Deneba Hospital. The condition of service quality in Deneba Hospital will what needs to be improved in order to reduce the level of patient dissatisfaction? Research about the effect of service quality to patient's satisfaction in an effort to increase the loyalty of inpatients in Deneba Hospital to did, because this research had not been done in Deneba Hospital. The sample in this study are inpatients, for patients who are hospitalized would intersect more intensive with many aspects of hospital services starting from medical services, room facilities, medical equipment facilities, nursing facilities and others. This study aimed to inpatients in grade two and three. Based on the above research gaps, the objectives to be achieved in this research is to give an explanation about the influence service quality on loyalty with mediation of patient satisfaction in Deneba Hospital.

This study aimed to measure the Impact of Health Service Quality on Patient's Satisfaction in the Hospitals of Public sectors in Deneba. To attain the aim of this study a random sample of inpatients was chosen to conduct this study within. Patient satisfaction was one of internal factors that need improvement for betterment of the health care organizations so that the doctors, nurses and administrative staff can produce maximum work productivity. Hospitals and other health care providers assumed an important role in service sector is growing rapidly. Hospitals must pay attention to the decline in the number of inpatients. In case that determined the quality of hospitals, among others: to minimize patient's complaints against service of doctors, nurses and administrators who are often late and less nimble. Hospital industry must achieve service quality parameters with accuracy and precision of the results of medical examination, courteous and friendly service. Patient satisfaction has an important role on several aspects of health care organizations. Service quality is considered as an important factor for developing patient loyalty. Patients received such satisfaction will feel comfortable and form a positive perception of service quality. Service qualities play a major role in achieving patient satisfaction. This condition then made hospital services deserve the number one position according to patient so that he becomes loyalty by not using the hospital services of competitors. The aim of this study will to determine the effect of service quality on patient satisfaction.

It is stated that everyone has equal rights in obtaining access health care, safe, qualified, affordable health service, has the rights to independently and responsibly decide the health service that they need. Meanwhile, the government is responsible for guaranteeing the healthy right to live for their people. Most people argue that the service provided by the state health service center has not been absolutely compatible with their expectation that it generates dissatisfaction; whereas the satisfaction of the users is the parameter of the quality of health service (Ministry of Health, 2014; Hidayat, 2016).

### **1.1 Statement of the Problem**

The health care service industry historically has paid limited attention to customer perspective (Howard, 2000). The main challenge is to create health systems which fairly improve health outcomes, satisfy clients 'expectations and to render the services at fair price (Blazevska et al., 2004). Health care systems in most developing countries suffer from

serious deficiencies in financing, efficiency, equity and quality; poorly prepared to meet these challenges (Fekadu and Yohannes, 2011).

In Ethiopia, health services are inadequate and of poor quality and the country has extremely poor health status relative to other low income countries (Habtamu and Abebe, 2016). According to WHO (2010) limited availability of health resources, overreliance on direct payments at the time of people need care and inefficient and inequitable use of resources identified as the main interrelated problems that limit universal health coverage.

Client satisfaction rate is generally believed to be low due to different reasons such as limited skilled manpower, infrastructure and other basic health resources. The factors that affect the service satisfaction level among customers of health service utilizes are not well assessed taking into account all five integral components of service quality models including tangibles, reliability, responsiveness, assurance and empathy. They tend to take parts of these service quality measurements to measure customer level of satisfaction. In most cases studies focused on health service provider's circumstances. In addition, when these previous researches are well reviewed they focused on urban hospitals. But, there are high disparities between accessibilities, quality of health service delivery between the urban and rural areas (World Bank, 2005).

Anteneh et al (2014) conducted a research on patient satisfaction with outpatient health services in Hawwasa university teaching hospital, southern Ethiopia using a cross-sectional study. The study deployed interview administered questionnaires to assess the level of outpatient satisfaction with health care and health services at outpatient department.

Habtamu and Abebe (2016) conducted a research of predictors of patient satisfaction with the health care services provided in Oromia regional state on public hospitals. The study was a cross-sectional study on six selected hospitals in Oromia using semi-structured questionnaires to determine level of outpatient satisfaction with outpatients 'health services.

Hailu (2015) conducted a research on determinants of patient satisfaction, the case of Assosa hospital, Benishangul-gumuz regional state of Ethiopia applying descriptive type of research. The study was carried out to assess determinants of patient satisfaction at outpatient department.

A study conducted by Worku et al (2018) on clients 'satisfaction with health care providers 'communication and associated factors among pregnant women attending antenatal care in

Jimma town Public health facilities using cross-sectional study design with mixed data collection methods. The study was mainly to determine level of clients 'satisfaction from health care providers 'communication.

Tirist et al (2015) undertaken a research on perceived patient satisfaction with inpatient services at Jimma university specialized hospital, south west Ethiopia using structured questionnaires. The study was to assess level of inpatients 'satisfaction with the hospital services.

Based on the above reviewed study and other variety of client satisfaction studies in Ethiopia, the majority of the study focused on urban hospitals and health centers. These studies and others conducted in Ethiopia also failure to assess internal facilities, shortage and challenges of basic health resources, absence or inappropriate service units and minimum service delivery standards of hospitals or health centers which has significant contribution for quality health services and associated customer satisfaction.

Therefore, in response to the above research problems and so far studied and indicated research gaps, this study is conducted to assess the effect of service quality on patient satisfaction in case of Deneba hospital.

The green glossy professional gown and badge table are issues that can speed up the delivery of services in the health sector, but this alone does not guarantee patient satisfaction. There is a gap and the solution is to look at the service delivery and patient care situation. To assess about service quality on LAB result, the toilets are clean and comfortable during all time, the health professionals does introduce themselves properly, does Bed shits changed on time or when dirty, the patient did get respect full service at laboratory unit and patient satisfaction and further about loyalty.

## **1.2. Objectives of the Study**

### **1.2.1. General Objectives**

The general objective of this study was to examine the effect of service quality on patient satisfaction the case of Deneba hospital.

### **1.2.2. Specific Objectives**

- To examine the effect of tangibility on patient satisfaction
- To examine the effect of responsiveness on patient satisfaction

- To examine the effect of reliability on patient satisfaction
- To examine the effect of assurance on patient satisfaction
- To examine the effect of empathy on patient satisfaction

### **1.3. Significant of the Study**

The main rationale of this study was to examine the effects of service quality on patient satisfaction. The study would enable to fill information gap concerning patient satisfaction by applying the necessary investigation and have some contribution in identifying the problem and seeking solution for service quality and also it has the following advantage. It would be tell the institution management and expert how to increase patient satisfaction, it creates awareness for leader how to run the institution, it will source for other investigation, it will indicate the gap that takes place in the hospital

Finally, after having assess the impact of service quality on patient satisfaction of. The paper would give recommendation on area of service quality of the institution, the result of this research will be important as a base for further investigation or study on service quality of health sector.

### **1.4. Scope of the Study**

The interest of the research would focus its area of study in the impact of health service quality on patience satisfaction at Deneba primary hospital. The research did not include other service delivery within the institution and only concentrate on some research techniques due to time and other resources constraints.

### **1.5 Limitation of the Study**

While conducting this study the researcher would be face the following limitations:

The scope of the study is limited with around Deneba area, the study would not explain as zonal, regional and country level and also the researcher would use some of the research techniques, approaches. The study would not fully express all the components that related with health service quality on patient satisfaction issues.

# **CHAPTER TWO**

## **2. REVIEW OF RELATED LITERATURE**

This chapter presents a comprehensive review of relevant literature in an attempt to position the study in an appropriate theoretical framework. It reviews theoretical, conceptual, and empirical literature related to the study it comprises theories related to factor of service quality that affect patient satisfaction, such as occupational health and safety, work hour, work load, work place reward and supervisory support. In this study, the contribution is review to show the effect of service quality on patient satisfaction in Deneba hospital.

### **2.1 Service**

The service defined as "activity or benefit provided by one party to another and are basically intangible (not entailing of any ownership) and its production might be associated or not with a material commodity. (Kotler and Keller, 2006, P402). Services are defined as the means of delivering intangible economic activities that add value to customers implying interaction between service provider and consumer through a process of transaction (Frauendorf, 2006). Services depend on the type of product and it differs in the various organizations. Services process lead to an outcome resulting in the customer being either satisfied or dissatisfied with the service experience (Mayer et al., 2003), it is paramount importance that service organizations pay attention to designing the system by which service concepts are produced and delivered to customers (Brown et al., 1994).

### **2.2 Service Quality**

Service quality by Parasuraman, Zeithmal and Berry (1988) was a reflection of consumers' evaluative perception of the service received at any given time. Lewis and Booms (2007) service quality as a measured of how good the level of services rendered capable accordance with customer expectations. Service quality could be realized through the fulfillment of customer wants and accuracy of delivery to keep pace with customer expectations. Furthermore, Kotler (2010) defined service quality as a performance that can be offered by one person to another. This performance might be an act that is intangible and did not result in possession of any item and against anyone. Assessment of service quality based on research conducted Parasuraman, et al. (1988) knew as service quality based on five dimensions of service quality will not have positive effect on patient satisfaction? will not

have positive effect on patient satisfaction include tangibility is a dimension of service quality among other physical facilities, equipment, personnel and means of communication as well as the circumstances surrounding neighborhood is tangible proof of the services provided by the service provider. Both reliability that was a dimension in service quality of the ability to provide the promised services on time consistently and reliably. Third responsiveness that service quality dimensions of staff capabilities to assist customers and provide services to respond. The fourth dimension of service quality assurance which includes the ability, courtesy and trustworthiness owned by staff, is free from risk or hesitations. Last empathy, include the ease of had good communication and understand the needs of customers.

### 2.3 Service quality dimension

- (i) **Tangible:** these cover the equipment's, physical facilities and personnel appearance
- (ii) **Reliability:** This demonstrates the ability of being able to provide operating services that can be considered as desirable.
- (iii) **Responsiveness:** This shows the employees desire to assist consumers to bring about prompt services
- (iv) **Assurance:** This has to do with the staff's knowledge and level of courtesy. It enhances capability, provides confidence and trust
- (v) **Empathy:** This is the employee's ability of being able to regard the needs of the consumers as one's personal needs

#### 2.3.1 Attributes and characteristics of the service

Al-Allaq& Al-Tai identified (Al and Al-Alaq, 2009, p. 39) attributes and characteristics of the service as follows:

##### 1) Intangibility: -

Means that it doesn't have a material and tangible recipient can judge through their known senses of smell or touch or taste, hearing and watching it prior to purchase

and see the result precisely. Therefore, some offer the service through an attractive formula that gives intangibility on the service.

## **2) Inseparability**

Means to produce and consume the service at the same time, some services are considered for the consumer an integral part of the production of the service, and therefore the consumer of the service must be in the same location of the service production. This also applies to the health service, where its presentation requires a recipient in the same place of production.

## **3) Variability**

Here it means the inability to produce the same service every time, it is difficult to homogenize particular services that rely on human, and therefore difficult to maintain a certain quality level. For example, a surgery made on a patient has a success rate that varies from a doctor to another and also differs for the same physician from patient to another.

## **4) Perish ability**

The oscillation problem of service request, the demand for service is irregular, which gives the enterprise the opportunity to arrange their capacity and the size of the staff on this basis, but there are high demand periods that require significant capacity and staff, and there are periods of low demand where the large staff becomes an expensive burden on the Organization, that the work process in hospitals is fluctuating by seasons, social and general conditions of the people. At a time when work is weak, you cannot store non-busy beds, disabled staff for peak workloads, therefore there is a lost profit opportunity in that period, and this requires good and sensitive management in order to balance between high and low demand seasons of service. Through the above & dropping their service overall attributes to health service we find they also tended to be intangible, which cannot be discerned such as physical products and only judged by receiving, and cannot be owned by them. Its production is also at the same time as being received, thus the patient must be in the same location as the presence service, it cannot separate production from consumption, and the recipient is an integral part of their production, they are heterogeneous with differing service provider and receiver, also it cannot be stored.

## **2.4 Quality concepts**

We note that the idea of quality means excellence, clear standards and higher performance, quality factor can be measured, and the role of quality come in achieving (Competitive Advantage) to the concerned institution, quality of health service is applied by medical science and technology in a manner to achieve the fullest possible public health without increasing risk, thus quality is determined by the best possible balance between risks and benefits. (Niaz, 2007, page 50).

## **2.5 Quality types**

**Gronroos determined (Gronroos, 2001) quality types as follows:**

### **1) Technical Quality**

A service that is received by the client as a result of a process of interaction with the institutions providing the service or in other words, is the final benefit accruing to the recipient of the service and expressed in the question what has been submitted?

### **2) Functional Quality**

A method or a way of how the output is transferred to the beneficiary from the service and expressed in the question how is the service submitted?

### **3) Mental impression on the organization**

The image of the organization or institution in the mind of the customer or the customer's impression of what is a service organization and this dimension is the inevitable outcome of the technical and functional dimensions of quality and evaluation of clients. (Gronroos, 2001) as (babakus, 1992) on health service quality components as follows:

#### **1) The technical quality of the health service:**

Means the accuracy of diagnostic and treatment procedures are difficult to judge by the recipient of the service.

#### **2) Functional quality of health service:**

How to provide health service for patients, this aspect of service could be understood and judged by the receivers on the quality of health service.

## **2.6 Service quality measurements**

There are two methods of measuring quality of service one attributed to Parasurman et al (1985), and based on customer expectations of service level and understanding of the level of service already provided, and then selecting the gap (or match) between these expectations and perceptions using quality of service five dimensions of which are intangibility, reliability, responsiveness, empathy, and certainty. This method of service quality measurement was called measurement gap or SERVQUAL scale, the centerpiece in service quality measurement model is the gap between the perception of the actual performance level of client service and his expectations about the quality of this service. But this gap depends on the nature of the gaps related to design, market and delivery of the service.

## **2.7 Satisfaction**

The sense of satisfaction, according to Lovelock (2002) was an attitude that is decided on the basis of experience gained. Satisfaction according to Oliver (2010) that as the level of someone's feeling after comparing the performance or results that he felt with his expectations. The level of satisfaction was a function of the difference between the perceived performances with expectations. If the performance was below expectations, then the customer will be very disappointed. When performance as expected, then the customer would be very satisfied. When performance exceed customer expectations would be very satisfied, customer expectations can be shaped by past experiences, comments from relatives as well as appointments and information from various media. Further satisfaction according to Kotler (2010) was the level of someone's feeling happy after comparing the performance or perceived results as compared to expectations. So satisfaction or dissatisfaction was the conclusion of the interaction between expectations and experience after using the service or services rendered. Consumers who were satisfied will tend to say something that is good about the product in question to others and this is expected by the company (Crosby, Evans and Cowles, 1990). Customer satisfaction could be measured through the satisfaction to have the satisfaction of doing the right thing, overall satisfaction with the products and services (Crosby, Evans and Cowles, 1990 and Kim and Cha, 2002).

### **2.7.1 Patient satisfaction**

Customer satisfaction is meeting the customer expectations of products and services by comparing with the perceived performance. If the perceived performance matches customer expectations of services, they are satisfied. If it does not, they are dissatisfied (Oliver, 1997; Zeithaml and Bitner, 2000). The disconfirmation theory postulates that disconfirmation is the primary determinant of consumer satisfaction. This disconfirmation model is the most popular satisfaction model used across industry (Oliver, 1997; Patterson, 2000; Wirtz and Lee, 2003; Wirtz and Mattila, 2001). This implies that satisfaction reflects the degree to which a consumer believes that the possession and use of a service evoke positive feelings based on the disconfirmation paradigm in process theory. Nevertheless, this perception of disconfirmation is likely to be minimal since performance remains within acceptable or tolerable ranges (Kim et al., 2008; Wirtz and Mattila, 2001; Zeithaml et al., 1993). For example, Linder-Pelz (1982) suggested that patient satisfaction was mediated by a patient's personal beliefs and values about a hospital and their previous expectations about the hospital. In the health care industry, the discrepancy and transgression theories explain that the patients' orientations and the provider conditions were different, and that if these orientations and conditions were matched with the patients' expectations, then the patients would be satisfied, but if not, then the patients would be dissatisfied (Fox and Storms, 1981; Gill and White, 2009). Therefore, in the hospital industry, patients' satisfaction plays an important role in measuring the quality of care and continuing their services (Grogan et al., 2000). Previous research has identified various factors that determine customer satisfaction in the hospital industry and the differences in how consumers perceive services across countries and cultures that cannot be generalized. For example, Urden (2002) highlighted that patient's satisfaction is a cognitive approach, emotionally affected, and a patient's subjective perception. Furthermore, Crowe et al. (2002) pointed out that the interpersonal relationships between the patients and health care provider is the most important determinant of customer satisfaction (Gill and White, 2009). Similarly, the quality of the relationship between patients and doctors has a considerable impact on the patient satisfaction measure (Alhashem et al., 2011; Mercer et al., 2008; Moret et al., 2008). In this context, patient satisfaction is defined as the judgment made by patients on their expectations for care services that have been met or not in respect of both technical and

interpersonal care (Campbell et al., 2000; Esch et al., 2008). Thus, a hospital's ability to deliver these benefits on an ongoing basis will influence the patients' level of satisfaction.

## **2.8 Loyalty**

Definition of loyalty according to Kotler and Keller (2009) was a strongly held commitment to make another purchase or subscribe to a particular product or service again in the future even though the effect of the situation and marketing efforts that could potentially lead to the transition behavior. Griffin (2010) defined a consumer loyalty is said to be loyal or disloyal when consumer buying behavior shows regularly or there is a condition in which the consumer requires the purchase of at least two times in a certain time interval.

Furthermore, Oliver (2010) suggested that there should be a definition of loyalty not only count what has been done by the customer, but also must take advantage of the psychological sense of loyalty. Loyal customers who were holders of the commitment to re-purchase a subscription to the products or services that have been consistently in the future even though affected by the situation and the potential marketing effort that will result in the displacement behavior. Relation to the customer experienced, Smith and Wheeler (2002) revealed that customer loyalty cannot be created just like that, but it should be designed by the company. The loyalty could be measured in three dimensions which include: repeat patronage, switching behavior, and word of mouth (Lin and Ding, 2006). Health is the prosperous state of body, soul, and social which enables individuals to live productively in social and economic aspects, in terms of reaching the goals.

## **2.9 Empirical review**

Hospitals have always been a place of care that provides the population with complete healthcare, both curative and preventive. In the hospitals, quality of care is measured with two metrics: patient outcomes and patient satisfaction. Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's or service's perceived performance (or outcome) in relation to his or her expectations. (Kotler, 2000). Patient satisfaction is defined as the appraisal, by an individual, of the extent to which the care provided has met that individual's expectations and preferences (Brennan 1995). It is the degree to which the individual regards the healthcare service,

product or the manner in which it is delivered by the provider as useful, effective, or beneficial (Online Medical Dictionary, 2012). Patient satisfaction mostly appears to represent attitudes towards care or aspects of care (Jenkinson et al. 2002). It is referred to patient satisfaction as patients' emotions, feelings and their perception of delivered healthcare services (Mohan & Saikumar, 2011). The concept of patient satisfaction is multidimensional, and reflects patient perceptions and expectations compared to the actual care they receive (Edlund MJ, et al, 2003) . Speight (2005) saw that the implicit in patient satisfaction definitions is the assumption that the patient attaches values to specific attributes of the treatment or service, and that these are unique to each individual's experience. It is found that patient satisfaction increases patient retention, willingness to recommend, improve the rate of patient compliance with physician advice and requests. It improves trust, loyalty and decreases the number of lawsuits. Service quality is often regarded as the antecedent of patient satisfaction (Irfan (2012, Speight 2005, Zarei et al. (2012), Shan et al., (2016). For these reasons patient satisfaction survey is an effective tool that provides information and insight on patients' views of the services they receive. For the purpose of this research overall patient satisfaction was defined as "the extent to which outpatient is content with the healthcare services which they received from al-Bashir Hospital".

### **2.9.1 The link between patient Satisfaction and Service Quality**

Customer satisfaction is the personal feelings, meanings and interpretation about a consumer makes of a product and service following its usage (Solomon, 1996). Customers who are satisfied with a product would convey pleasurable information about the product to others with a view to convincing others to patronize it. At the polar end of such reasoning is the notion that, dissatisfied customer of a product will not only desist from a subsequent patronage of the product but will spread damaging information about the product or services to other users which might discourage its patronage. Customer satisfaction is highly associated with service quality (Parasuraman et al., 1988).

Customers of health services play a variety of roles in health service quality assessment; therefore, play a variety of roles in health care quality assessment and monitoring. By

expressing their preference, they supply the valuations needed to choose among alternative strategies of care (Donabedian, 1988). They help define the meaning of quality in the technical sense. Moreover, their preferences are the paramount consideration in defining the quality of the interpersonal process and the amenities of care. Customers are also valuable source of information in judging the quality of care and non-technical aspects of treatment. This is because customers can and do through expressing satisfaction or dissatisfaction; pass a judgment about many aspects of the process of care and its outcomes. Customers if properly informed could help to regulate the quality of health services by means of their choices (Ofosu, 2012).

Patient satisfaction with service can be associated on patient perceptions of the following service quality standards or elements of SERVQUAL models (Parasuraman et al., 1988). Customer satisfaction standards of measurement comprises within these five elements of SERVQUAL models. Tangibles: Appearance of physical facilities, personnel and written materials. It is the appearance, availability and convenience of amenities. It is condition of surrounds, including equipment, ability level and skills of existing staff as well as cleanliness of the health facilities.

Reliability: Ability to perform the promised service accurately and dependably. It is a process and existence of quality of care in a health center. Responsiveness is willingness to help a customer and provide prompt service. It is readiness of the staff to help customers in a sense of motivation and commitment at each service provision unit. Responsiveness on the other hand, is an intrinsic goal of national health care system. Client power and health system responsiveness are largely a function of the ability of patients to make their wishes heard (WHO, cited in Waju et al., 2011). Assurance is the ability to convey trust and confidence through courteous knowledgeable behavior (Parasuraman et al., 1994). This includes competence, respect, communication and good interpersonal relationships. This is an important aspect of service quality when the patient feels uncertain in the ability of care provider especially when the client counter life threatening illness.

Empathy as one important part of service quality, is caring individualized attention given to a customer. It is adequate provision of care and ability to show compassion. It is ability to be approachable and being sensitive towards patient health problems to take

appropriate interventions. Empathy which is a core component of consultation, it is often seen as crucial to the effective achievement of patient satisfaction in that it encapsulates sensitivity to both the informational and emotional aspects of communication. Service providers who appear fully attentive avoid distractions, show smile and sit on the same level as the patient as all convey an important message of caring and listening to client concerns (Habtamu&Abebe, 2016).

## 2.10 Conceptual framework

### Independent Variables

### Dependent variables

Service Quality Dimensions

Patient Satisfaction Dimensions



Source: Parasuraman et al. (1988).

## 2.11 Research hypothesis

- H1; tangibility has positive and significant effect on patient satisfaction.
- H2; responsiveness has positive effect on patient satisfaction.
- H3; reliability have positive effect on patient satisfaction.
- H4; assurance have positive effect on patient satisfaction.
- H5; empathy have positive effect on patient satisfaction.

# **CHAPTER THREE**

## **3. RESEARCH METHODOLOGY**

### **3.1 Research Design**

The researchers would be use Explanatory type of research. Because to gain familiarity with an existing phenomenon and acquire new insight into it to form a more precise problem. It begins based on a general idea and the outcomes of the research are used to find out related issues with the topic of the research. Exploratory type of research is usually conducted to have a better understanding of the existing problem.

### **3.2 Research Approach**

The researcher would be use quantitative. In this study explanatory research design will apply. Quantitative methods are designed to provide summaries of data that support generalizations about the phenomenon under study. Quantitative Studies. Statistical analysis lets us derive important facts from research data, including preference trends, differences between groups, and demographics. Because the data is in a numeric form, we can apply statistical tests in making statements about the data. Quantitative Research is used to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics. It is used to quantify attitudes, opinions, behaviors, and other defined variables – and generalize results from a larger sample population.

### **3.3 Sources of Data**

For this study, data was obtained from both primary and secondary data sources.

#### **3.3.1 Primary data**

Primary data collection is used based on questionnaire and interview techniques. According to Veal (2017), questionnaire is an instrument of data collection from individuals using a formally designed schedule of questions. The researcher will be use questionnaire for the fact that it is less expensive and offers greater anonymity, gives the respondent sufficient time for reading and understanding the questions and answer freely, and it provides wider coverage to the sample and also facilitates collection of a large amount of data. In order to realize the target, the study used well-designed questionnaire as best

instrument adopted from different sources, Getamesay (2016), Jalagat (2017), & Mathangi (2018) which are found to be appropriate for the study. The questions focused towards the assessment of patients and explore various challenges during its process.

### **3.4 Sampling Design**

#### **3.4.1 Target Population**

A population is all the items under consideration in any field of inquiry. As the definition of Sekaran (2001) a population as “the entire group of people, events, or thing that the researcher wants to study about. According to Ayenew (2017), a study population refers to a complete set of individuals, objects, entity or occasions that have common observable characteristics in which the researcher is interested to study about. They further described that; population constitutes the target of a study from which the data is collected and must be clearly defined and identified. The target population for this study is patients in Deneba hospital.

#### **3.4.2 Sampling Technique**

The researcher was interested to explore the effect of service quality on patient satisfaction in case of Deneba hospital at Deneba town. Deneba town is one of the 27 woredas of North Shoa zone in Amhara Regional state of Ethiopia. In the town there is 1 hospital and 1 clinic. This study is focus on the effect of service quality on patient satisfaction on Deneba hospital. Convenience sampling is a type of nonprobability sampling in which people are sampled simply because they are "convenient" sources of data for researchers. In probability sampling, each element in the population has a known nonzero chance of being selected through the use of a random selection procedure.

#### **3.4.3 Sample Size**

In the determination of sample size, the three criteria were very important to gather the required data from sample respondents. These included the level of precision, the level of confidence or risk and the degree of variability in the attributes being measured that enable the researchers to determine appropriate sample size (Miaous & Michener, 1976). Therefore, the total numbers of patients are 35000 employees. The researcher used Yamane's (1967) formula to calculate sample size.

$$n = \frac{N}{1 + N(e)^2}$$

Where; n= is the sample size,

N= is the population size, and

E= is the level of precision.

By using this formula at 95% confidence level and 5% level of precision the sample size was obtained as follows: -

$$n = \frac{35000}{1 + 35000(0.05)^2}$$

$$n = 399$$

### **3.5 Data collection Instrument**

To obtain adequate and relevant data for the study and triangulate it, the researcher will employ questionnaire and interview.

#### **3.5.1 Questionnaire**

Questioner prepared by researcher will distributed to gather data from deneba hospital. The purpose of the questionnaire in each scale is to collect data from hospital patients about factors affects their satisfaction. The questions focused towards the assessment of patients and explore various challenges the questionnaire contained closed ended questions with 5 Likert Scale from “Strongly Agree” =5, “Agree” =4, “Neutral” =3, Disagree” =2, and “Strongly Disagree” =1 and it will administer by the researcher.

#### **3.5.2 Measurement**

Independent and dependent variables in terms of cause and effect: an independent variable is the variable I think is the cause, while a dependent variable is the effect. In an experiment, manipulate the independent variable and measure the outcome in the dependent variable.

#### **3.5.3 Measuring service quality**

Patients in general receive various services of medical care and judge the quality of services delivered to them. The service quality has two dimensions (a) a technical dimension i. e., the core service provided and (b) a process or functional dimension i. e, how the service is provided (Gronroos, 1984). Parasuraman et al (1988) suggested a widely used model known as SERVQUAL for evaluating the superiority of the service quality. In the SERVQUAL

model, Parasuraman et al identified the gap between the perception and expectation of customers on the basis of five attributes viz. tangibles, reliability, responsiveness, assurance and empathy to measure customer satisfaction surveys in the light of service quality (Parasuraman et al., 1988). These are five elements or terms comprises health service standards; consisting list of constructing statement under each of them. Some of these statements could not be applied in rural health centers contexts since the impact they may have put is less when compared with urban hospitals.

Brady and Cronin (2001) suggested a hierarchical model to measure perceived service quality considering three primary dimensions viz. interaction quality, physical environment quality and outcome quality consist of attitude, behavior and experience; ambient conditions, design and social factors as physical environment quality, waiting time, tangible and values.

#### **3.5.4 Independent variable dimension**

- (i) **Tangible:** these cover the equipment's, physical facilities and personnel appearance
- (ii) **Reliability:** This demonstrates the ability of being able to provide operating services that can be considered as desirable.
- (iii) **Responsiveness:** This shows the employees desire to assist consumers to bring about prompt services
- (iv) **Assurance:** This has to do with the staff's knowledge and level of courtesy. It enhances capability, provides confidence and trust
- (v) **Empathy:** This is the employee's ability of being able to regard the needs of the consumers as one's personal needs

#### **3.5.5 Measuring patient Satisfaction**

Standards of patient satisfaction means that the level of patient satisfaction which patient express their opinions about for its specific service quality. Each standards of patient satisfaction from the services measured as very satisfied, satisfied, Neutral, dissatisfied, and very dissatisfied. In other words, it is related to Likert scale. Measuring patient satisfactions provide a comprehensive insight into to the patient pre and post purchase behavior. Without this approach understanding, improving, and developing better customer services could not

be possible. One problem with measuring patient ‘satisfaction is that there may often be discrepancies between the patient view points and the provider’s understandings of what constitutes quality services (Girum et al., 2018).

In today increased competition among private health service providers each other for high market share; and with public health facilities, dynamic health service environment challenges such as high price of drugs, commodities and medical supplies periodical customer satisfaction measurement and quality improvement is mandatory for public health facilities to protect citizens from extra costs at private health facilities and retain customers to public health services.

### **3.6 Validity Test Analysis**

The purpose of validity testing was to know how far the instruments measure correctly and accurately. Validity testing will be used product moment correlation with the criterion of acceptance as the following:

The item of questionnaire is valid if statistic is higher than table (critical value) at degree of freedom 95% ( $\alpha = 0.05$ ).

### **3.7 Reliability Test Analysis**

The purpose of reliability testing was to examine the consistency of the data. In this research the reliability will be measured by the internal consistency approach, that is, the concept stressing on the consistency between items in the questionnaire. Reliability measurement with one shot, and then the result will be compared with other items in the questionnaire. SPSS software gives the facility to analyze this test using Cronbach’s Alpha. A construct or variable is reliable if the Cronbach’s Alpha is more than 0.6 (Ghazali& Abbas 2017). After all instruments will be tested for reliability, the classical assumption of multiple linear regressions will be tested for the following aspects.

**Table 1 Pilot Survey of Reliability Test**

Variable	Frequency	sign	Cronbach's Alpha	Internal consistency
Tangibility		+	0.764	good
Assurance		+	0.729	good
Responsiveness		+	0.764	good
Empathy		+	0.757	good
Reliability		+	0.737	good
Patient satisfaction		+	0.822	Very good
All variable		+	0.736	Good
Test scale			0.762	Good

Source: Survey (2020) SPSS 23 Output

The Cronbach's alpha results for the items of the questionnaire and their alpha values have met acceptable (which is  $>0.6$ ) level of consistency in relation to the aforementioned standard. The pilot survey Cronbach's Alpha Coefficient was 0.796 showing very good level of internal consistency.

#### 4.3 data reliability and validity

### 3.8 Data Analysis Method

Data from questionnaires will be analyzed and summarized through both explanatory statistics using SPSS software version 23 (Statistical Package for Social Science). The interview gathered from managers is discussed in the discussion part and condensed along with the corresponding analysis. The descriptive statistics (frequency distribution, percentile, minimum, maximum, mean and standard deviation), which helped the researcher to examine the general level of employee performance and the selected factors of performance. The SPSS version 23 will be used to analyze the data obtained from primary sources. For explanatory research type it is important to use inferential type.

### **3.9 Data Analysis technique**

The data collection method of this study will be required and collected through questionnaire. So, the collected data is assign by numeric values; hence the research will be analyzed quantitatively using descriptive and inferential analysis. Explanatory analysis will be used to reduce the data in to a summary format by tabulation, frequency percentage, mean and standard deviation and inferential analysis is used for statistical testing of hypotheses. In analyzing the data, the present researcher used SPSS version 23 software packages.

#### **3.9.1 Model specification**

This study is used multiple regression which combines to show the relationship between independent and dependent variables. The main reason for using regression model in this study is to make the study more influential in explaining, understanding, and predicting the factors that affect service quality. The model to be used is presented as follows.

$$S = A_0 + A_1R + A_2A_s + A_3T_a + A_4E_m + A_5R_e + E$$

Where: S= Service quality

R = Responsiveness

A = Assurance

T; Tangibility

E; Empathy

R; Reliability

A<sub>0</sub>= Constant Term (which is equal to the mean if all slope coefficients are 0)

A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub> are the coefficients of explanatory variables.

E = is the error term

Therefore, the present researcher used SPSS version 23 software statistical method to show the relationship of dependent variable (patient satisfaction) and independent variables (service quality).

### **3.10 Ethical Consideration**

The researcher followed a code of ethics throughout the research process that included protecting the privacy rights of the participants in the study, following ethical practices when conducting the study, ensuring all participants which safes from any harmful conditions or practices and conducting and reporting the research data and findings with

integrity, validity, and credibility. These commitments were the responsibility of the researcher and continually modeled and practiced.

In addition, all reference materials are acknowledged with proper citation and confidentiality of data is maintained throughout the process. All information and ideas that was obtained from the respondents were treated with confidentiality without disclosures of respondent's identity. During data collection, ethical considerations was seriously taken into account to ensure the protection, anonymity, consents and other human elements of the informants.

## CHAPTER FOUR

### Data Analysis, Presentation and Interpretation

#### 4.1 Introduction

This section of the study deals with presentation, analysis and interpretation of data collected through questionnaires. The first part of the questionnaire was designed to gather information about service quality and the second part of questionnaire was designed to gather information about patient satisfaction.

As stated in research proposal 399 respondents were expected to provide their opinions or expectations about the service or to be eligible for research survey questionnaires. That means 104 respondents to service quality and 275 respondents to patient satisfaction. In a few cases and unfortunately there were a condition that the respondent missed from home for different reasons, and hence only 20 respondents were missed or uncollected.

This study was conducted to assess and analyze the effect of service quality on patient satisfaction at Deneba hospital.

#### 4.2 Questionnaires response rate

The researcher distributed 399 questionnaires for Deneba hospital. Out of which 379(94.98%) were returned. The remain 20(5%) uncollected. So the analysis was made based on the response obtained from the 379 questionnaires.

**Table 2 Response rate**

Item	Response rate	
	Frequency	Percent
Sample size	399	100.00
Collected	379	94.98
Remain uncollected	20	5

Sources: Own survey, 2020

#### 4.3 Data reliability and validity

These two measurement characters' reliability and validity is indicators of the quality of service is important. According to Marshal (2006) the research validity means that we are measuring what we want to measure and Zikmund *et.al* (2010) it measures the accuracy or the extent to

which a score truthfully represents a concept. To ensure the researcher questionnaire cover all area of each variables and objectives of the study. According to Marshal (2006) refers the degree to which researcher instrument yields consistent data results after repeated trials. And also, as reliability refers to consistency repeatability of the measurement the researcher uses the questionnaires the data to be reliable. According to Nunnaly 1978 it can be cheeked through Cronbach’s Alpha if it normal ranges the coefficient alpha value between 0.0 and +1.0 and the higher values reflects a high degree of internal consistency. The alpha readings near 0.9 represent highly consistent scale and 0.3 reflect little. And according to Coakest and Stees (2007) reliability is indicates the consistency of a set of measurements used to describe a test and reliability is inversely relate to a random error. So that internal consistency should be determined before a test can be employ for research examination of purpose to ensure validity.

**Table 3 Data Reliability and Validity Test using Cronbach’s Alpha Coefficient**

Variables	Frequency	sign	Cronbach’s Alpha	Internal consistency
Responsiveness	379	+	0.859	Very good
Assurance	379	+	0.860	Very good
Tangibility	379	+	0.855	Very good
Empathy	379	+	0.857	Very good
Reliability	379	+	0.738	Good
Patient satisfaction	379	+	0.822	Very good

Source: Survey (2020) SPSS 23 Output

Rule of Thumb of Cronbach’s Alpha  
 Cronbach’s Alpha Description  
 $\geq .9$  Excellent  
 $\geq .8$  but  $< .9$  Very Good  
 $\geq .7$  but  $< .8$  Acceptable  
 $\geq .6$  but  $< .7$  Questionable  
 $\geq .5$  but  $< .6$  Poor  
 $\leq .5$  Unacceptable.  
 The alpha results for the items of the questionnaire and their alpha values have met an acceptable (which is  $>0.5$ ) in relation to the aforementioned requirement range. This study Cronbach’s Alpha Coefficient 0.736 it is good levels.

**Table 4 service quality on Responsiveness**

Responsiveness	SD	DA	NUE	A	SA	Mean	Std. Deviation
Hospitals handled emergency situations well	14 13.4%	18 17.3%	9 8.6%	25 24%	38 36.5%	3.42	1.600
When hospital employee promises to do something by a certain time, they should do so	10 9.6%	14 13.4%	11 10.5%	26 25%	43 41.3%	3.18	1.340
The hospital should perform the service right the first time	7 6.7%	22 21.2%	4 3.8%	35 33.6%	36 34.6%	2.64	1.486
Employees should give prompt service to patients	6 5.7%	14 13.4%	6 5.7%	40 38.4%	38 36.5%	3.40	1.350
Employees in a hospital should never be too busy to respond to patients' requests	6 5.7%	27 25.9%	5 4.8%	29 27.8%	37 35.5%	3.66	1.269
Their operating hours should be convenient to all their patients	6 5.7%	21 20.2%	5 4.8%	30 28.8%	42 40.4%	2.91	1.533
Hospitals will give prompt discharge to their patients	9 8.6%	26 25%	8 7.7%	27 25.9%	34 32.7%	3.06	1.323

From the above table we can understand that;

According to Zaidaton & Bagheri (2009) the mean score below 3.39 was considered as low, the mean score from 3.40 up to 3.79 was considered as moderate and mean score above 3.8 was considers as high as illustrated by Comparison bases of mean of score of five-point Likert scale instrument. Thus, detail of the analysis is presented as follows:

- ✓ Responsiveness in the Deneba hospital have a mean value of 3.42 , which is below average indicating that the current responsiveness do not satisfy patients because the hospitals give smaller prompt service to the patients, they do not handle emergency situations well. So the hospital give well and prompt service to the patients equally.
- ✓ Response of the participants of the 1<sup>st</sup> question in which most participant or respondent were agree 38(36.5%), and 25(24%) were strongly agree, 9(8.6%) were neutral for the statement, 18(17.3%) were disagree and 14(13.4%) were strongly dis agree for the statement of Hospitals handled emergency situations well.
- ✓ Question no.2 shows that most of the participants were strongly agree 43(41.3%) and 26(25%) were agree which show positive response to the question. 11(10.5%) were

neutral about the statement, and 14(13.4%) respondents were response dis agree and 10(9.6%) were strongly dis agree that when hospital employee promises to do something by a certain time, they should do so.

- ✓ Question no.3 shows that much of the participants were 36(34.6%) agreed and 35(33.6%) were strongly agree this shows positive response to the question and they says the hospital should perform the service right the first time, 4(3.8%) respondents were neutral about the statement and 22(21.2%) participants were dis agree about the question and 7(6.7%) were strongly dis agree to the statement.
- ✓ Response of the participant to the 4<sup>th</sup> question 40(38.4%) were agreed to the statement and 38(36.5%) participants were strongly agree to the above question which shows positive response to that employees should give prompt service to patients, 6(5.7%) respondents were neither agree nor disagree to the question and 14(13.4%) participants were dis agree to the statement. Only 6(5.7%) respondents were strongly disagree.
- ✓ Responses to question no.5<sup>th</sup> most of the respondents were strongly agree to the statement which is 37(35.5%) and 29(27.8%) participants were agree, 5(4.8%) were neutral to the question and 27(25.9%) respondents were disagree to the statement and 6(5.7%) were strongly disagree to the statement that employees in a hospital should never be too busy to respond to patients' requests.
- ✓ In question no.6<sup>th</sup> 42(40.4%) respondents were strongly agree to the above statement, 30(28.8%) were agree to the question that their operating hours should be convenient to all their patients, 5(4.8%) participants were neither agree nor disagree to the question and 21(20.2%) were disagree to the above question and only 6(5.7%) respondents were strongly disagree to the given statement.
- ✓ Response to question no.7<sup>th</sup> Hospitals will give prompt discharge to their patients in which most of the respondents were respond 6(5.7%) strongly agree and 27(25.9%) participants were agree to the question and 8(7.7%) were remained neutral, 26(25%) respondents were disagree to the above question and 9(8.6%) were strongly disagree to the question.

**Table 5 service quality on Assurance**

Assurance	SD	DA	NUE	A	SA	Mean	Std. Deviation
Hospitals have knowledgeable and experience doctors	13 12.5%	12 11.5%	8 7.6%	26 25%	45 43.2%	3.17	1.273
Employees should make information easily obtainable by the patient	6 5.7%	20 19.2%	5 4.8%	30 28.8%	43 41.3%	2.93	1.480
Employees of the hospital should have the knowledge to answer patients' questions	8 7.6%	12 11.5%	6 5.7%	34 32.7%	44 42.3%	3.42	1.532

- ✓ The above given table describe the response of 1<sup>th</sup> question which 45(43.2%) respondent were strongly agree, 26(25%) were agree that Hospitals have knowledgeable and experience doctors and 8(7.6%) respondents were neutral about the question, 12(11.5%) were dis agree about the statement and 13(12.5%) participants were strongly disagree about the 1<sup>th</sup> question.
- ✓ In question no. 2<sup>nd</sup> most of the respondents were strongly agree which is 43(41.3%) and 30(28.8%) respondents were agree to the above mention question, only 5(4.8%) participants were neutral to the question, 20(19.2%) participants were dis agree and 6(5.7%) were strongly disagree to that employees should make information easily obtainable by the patient.
- ✓ Response 3<sup>rd</sup> question of this contrast "employees of the hospital should have the knowledge to answer patients' questions". 44(42.3%) respondents were strongly agree to the question and 34(32.7%) participants were agree to the above statement this shows that there is positive response to the statement, 6(5.7%) were remained neutral, 12(11.5%) respondents were disagree to the above statement and only 8(7.6%) were strongly disagree to the statement.
- ✓ Assurance have a mean value of 2.93 which is below average indicating that patients may not be satisfied with knowledge and experience, and hospitals should have knowledge to answer their question. So the hospital give attention to its patients.

**Table 6 service quality on Tangibility**

Tangibility	SD	DA	NUE	A	SA	Mean	Std. Deviation
The physical environment of the hospital should be clean	12 11.5%	22 21.1%	10 9.6%	20 19.2%	40 38.4%	3.30	1.536
The hospital should have modern clinical equipment's	8 7.7%	25 24%	6 5.7%	22 21.1%	43 41.3%	2.99	1.418
Materials associated with services will be visually appealing in hospitals	6 5.7%	18 17.3%	13 12.5%	38 36.5%	29 27.8%	3.05	1.480
Hospitals have clean washroom, cleans room/wards without foul smell	4 3.8%	21 20.2%	6 5.7%	34 32.7%	39 37.5%	3.31	1.354
The hospital should have enough variety of products/medicine	6 5.7%	17 16.3%	8 7.7%	34 32.7%	39 37.5%	3.37	1.375
The products/medicine in the hospital should be of good quality	6 5.7%	20 19.2%	4 3.8%	40 38.4%	34 32.7%	2.87	1.481
The hospital has up-to-date equipment	4 3.8%	16 15.4%	9 8.6%	35 33.6%	40 38.4%	3.14	1.362

- ✓ Question 1<sup>st</sup> reveal that most of respondents were strongly agree 40(38.4%) and 20(19.2%) were agree that the physical environment of the hospital should be clean and 10(9.6%) were neutral about the question and 22(21.1%) were disagree and 12(11.5%) were out the statement.
- ✓ In the context of service quality question no.2 reported a high level of about 43 (41.3%) strongly agree and 22(21.1%) are agree, 6(5.7%) were neutral, 25(24%) disagree, and 8(7.7%) were strongly disagree that the hospital should have modern clinical equipment's.
- ✓ Response to question no.3 38(36.5%) respondents were agreed and 29(27.8%) were response strongly agree to the question of materials associated with services will be visually appealing in hospitals and 13(12.5%) participants were neither agree nor

disagree to the question, 18(17.3%) were disagree about the statement and 6(5.7%) respondents were strongly disagree to the statement.

- ✓ In response to question no. 4<sup>th</sup> 39(37.5%) respondents response strongly agree and 34(32.7%) were response agree which shows that Hospitals have clean washroom, cleans room/wards without foul smell, 6(5.7%) participants were neutral to the question and 21(20.2%) were disagree to the statement and only 4(3.8%) respondents were strongly disagree to the question.
- ✓ To illustrate question no. 5<sup>th</sup> most of the respondents were 39(37.5%) strongly agree to the statement, 34(32.7%) participants were agreed to the statement that show positive response, only 8(7.7%) were remained neutral and 17(16.3%) respondents were disagree to the statement that The hospital should have enough variety of products/medicine and 6(5.7%) were strongly disagree to the above statement.
- ✓ In question 6<sup>th</sup> 40(38.4%) respondents were agreed this shows positive response to the question that the products/medicine in the hospital should be of good quality, 34(32.7%) were strongly agree and only 4(3.8%) were remained neutral, 20(19.2%) participants were disagree to the above statement and 6(5.7%) respondents were strongly disagree to the statement.
- ✓ The last question of this contrast which is no.7<sup>th</sup> The hospital has up-to-date equipment.40 (38.4%) respondents were strongly agree to the statement and 35(33.6%) were agreed to the above question that shows positive response to the statement, 9(8.6%) participants were neutral and 16(15.4%) respondents were disagree to the above statement and 4(3.8%) were strongly disagree to the above question.
- ✓ Tangibility have a mean value 3.05, which is below average. This indicates that the current tangibility practice in the hospital is not as such as good in satisfying patients as indicates respondent's products or materials in the hospital should not have good quality as such. So the hospital should give attention in the above point so as to increase patient satisfaction.

**Table 7 service quality on Empathy**

Empathy	SD	DA	NUE	A	SA	Mean	Std. Deviation
The employees handling admission in hospitals should be polite	10 9.6%	9 8.6%	14 13.4%	31 29.8%	40 38.4%	3.15	1.343
Employees are always willing to help patients	13 12.5%	10 9.6%	6 5.7%	35 33.6%	40 38.4%	3.03	1.537
Their employees should be polite	12 11.5%	14 13.4%	4 3.8%	31 29.8%	43 41.3%	2.92	1.458
The hospital should give patients individual attention	9 8.6%	22 21.1%	3 2.8%	31 29.8%	39 37.5%	3.11	1.482
They should have their patients' interest at heart	12 11.5%	27 25.9%	10 9.6%	24 23%	31 29.8%	3.34	1.432
The employees should understand the specific needs of their patients	11 10.5%	25 24%	6 5.7%	33 31.7%	29 27.9%	3.05	1.510

- ✓ Question no.1 explain that most of the responded were 40(38.4%) were strongly agree
- ✓ and 31(29.8%) were agree about the question. 14(13.4%) were neutral for the above question. 9(8.6%) some of the respondent were disagree and also 10(9.6%) were strongly disagree about the question of the employees handling admission in hospitals should be polite.
- ✓ To illustrate question no.2 in which 40(38.4%) participants were strongly agree to the statement that employees are always willing to help patients, 35(33.6%) were agreed to the above question and 6(5.7%) were neutral to the statement, 10(9.6%) participants were disagree to the question and 13(12.5%) respondents were strongly disagree to the above question.
- ✓ Question no. 3 illustrates that 43(41.3%) respondents were strongly agree to the statement and 31(29.8%) participants were agree to the above statement that their employees should be polite, only 4(3.8%) respondents were neither agree nor disagree

and 14(13.4%) were disagree to the statement, 12(11.5%) respondents were strongly disagree to the above question.

- ✓ To illustrate question no. 4 most of the respondents were 39(37.5%) strongly agree to the statement, 31(29.8%) participants were agreed to the statement that show positive response, only 3(2.8%) were remained neutral and 22(21.1%) respondents were disagree to the statement that the hospital should give patients individual attention and 9(8.6%) were strongly disagree to the above statement.
- ✓ The above given table describe the response of question no.5<sup>th</sup> which 31(29.8%) respondents were strongly agree to the statement and 24(23%) were agreed to the above question that shows positive response that they should have their patients' interest at heart, 10(9.6%) participants were neutral and 27(25.9%) respondents were disagree to the above statement and 12(11.5%) were strongly disagree to the above question.
- ✓ In question 6<sup>th</sup> 33(31.7%) respondents were agreed this shows positive response to the question that the employees should understand the specific needs of their patients, 29(27.9%) were strongly agree and only 6(5.7%) were remained neutral, 25(24%) participants were disagreeing to the above statement and 11(10.5%) respondents were strongly disagreeing to the statement.
- ✓ Empathy have a mean score of 2.92 which is very low as compared to the above service quality dimensions. This implies that patients not satisfied with their specific needs given to them. This indicates that hospitals have to give due attention to their needs for their perspective or particular patients.

**Table 8 service quality on Reliability**

Reliability	SD	DA	NUE	A	SA	Mean	Std. Deviation
The behavior of employees in hospital should instill confidence in patients	8 7.7%	20 19.2%	2 1.9%	33 31.7%	41 39.4%	3.34	1.432
patients should be able to feel safe in their service with employees in the hospital	7 6.7%	16 15.3%	4 3.8%	32 30.7%	45 43.2%	3.05	1.510

- ✓ Question no.1 predicted about the statement is most of the respondents were strongly agreed which is 41(39.4%) and 33(31.7%) participants were agree to the statement this show that positive response to the question that the behavior of employees in hospital should instill confidence in patients and only 2(1.9%) were remained neutral to the question, 20(19.2%) participants were disagree to the question and 8(7.7%) respondents were strongly disagree to the above question.
- ✓ Response to question 2<sup>nd</sup> shows that 45(43.2%) respondents were strongly agreed to the above statement that patients should be able to feel safe in their service with employees in the hospital, 32(30.7%) were agree to the question and only 4(3.8%) participants were remained neutral to the above statement, 16(15.3%) were disagree to the question and 7(6.7%) participants were strongly disagree to the above question.
- ✓ Reliability have a mean score of 3.34 which is below average. This implies that patients not be able to feel safe in their service with employees. This indicates that hospitals should have work hard to feel safe their perspective or particular patients.

**Table 9 Patient satisfaction**

Patient satisfaction	SD	DA	NUE	A	SA	Mean	Std. Deviation
Indoor services are satisfactory	15 5.4%	20 7.2%	13 4.7%	131 47.6%	214 77.8%	2.32	1.378
Hospital is not fully conscious of your problems	24 8.7%	33 12%	6 2.2%	120 43.6%	92 33.4%	2.57	1.267
Hospitals never welcome your suggestion	25 9.09%	18 6.5%	13 4.7%	77 28%	142 51.6%	1.67	.861
Doctors are available throughout their duty	16 5.8%	48 17.4%	5 1.8%	69 25.09%	137 49.8%	2.48	1.254
Up-to-date health care techniques are well maintained	15 5.4%	65 23.6%	15 5.4%	74 26.9%	124 45.09%	2.89	1.364
Overall supportive facilities are excellent	41 14.9%	22 8%	10 3.6%	100 36.3%	102 37.09%	1.54	.893
The technical facilities blood bank, lab, etc. are good	24 8.7%	45 16.3%	9 3.3%	94 34.2%	103 37.4%	2.16	.899
You always visit this hospital for all types of treatments	20 7.3%	27 9.8%	3 1.09%	177 64.3%	48 17.4%	1.98	.908
Your expectations are fully meet with regard to doctors	23 8.3%	35 12.7%	8 2.9%	155 56.3%	54 19.6%	1.94	1.036
Your expectations are fully meet with regard to nurses	19 6.9%	37 13.4%	3 1.09%	147 53.4%	69 25.09%	1.87	1.077

- ✓ Question no.1 shows that most of the participants were strongly agree 214(77.8%) and 131(47.6%) were agree which show positive response to the Question. 13(4.7%) were neutral about the statement, and 20(7.2%) respondents were response dis agree and 15(5.4%) were strongly dis agree that indoor service are satisfactory.

- ✓ The above given table describe the response of 2<sup>nd</sup> question which 92(33.4%) respondent were strongly agree, 120(43.6%) were agree that Hospital is not fully conscious of your problems and 6(2.2%) respondents were neutral about the question,33(12%) were dis agree about the statement and 24(8.7%) participants were strongly disagree about the 2<sup>nd</sup> question.
- ✓ Question no.3 shows that much of the participants were 142(51.6%) agreed and 77(28%) were strongly agree this shows negative response to the question and they says Hospitals never welcome your suggestion, 13(4.7%) respondents were neutral about the statement and 18(6.7%) participants were dis agree about the question and 25(9.09%) were strongly dis agree to the statement.
- ✓ Response to question no.4<sup>th</sup> 137(49.8%) respondents were agreed and 69(25.09%) were response strongly agree to the question of Doctors are available throughout their duty and 5(1.8%) participants were neither agreeing nor disagree to the question, 48(17.4%) were dis agree about the statement and 16(5.8%) respondents were strongly disagreeing to the statement.
- ✓ In response to question no. 5th 124(45.09%) respondents' response strongly agree and 74(26.9%) were response agree which shows that Up-to-date health care techniques are well maintained, 15(5.4%) participants were neutral to the question and 65(23.6%) were disagree to the statement and only 15(5.4%) respondents were strongly disagree to the question.
- ✓ In question no. 6th most of the respondents were strongly agree which is 102(37.09%) and 100(36.3%) respondents were agree to the above mention question, only 10(3.6%) participants were neutral to the question, 22(8%) participants were dis agree and 41(14.9%) were strongly disagree to that Overall supportive facilities are excellent.
- ✓ Response of the participant to the 7th question 94(34.2%) were agreed to the statement and 103(37.4%) participants were strongly agreeing to the above question which shows positive response to that The technical facilities blood bank, lab, etc. are good, 9(3.3%) respondents were neither agree nor disagree to the question and 45(16.3%) participants were disagreeing to the statement. Only 24(8.7%) respondents were strongly disagreeing.

- ✓ To illustrate question no. 8th in which 48(17.4%) participants were strongly agreeing to the statement that You always visit this hospital for all types of treatments, 177(64.3%) were agreed to the above question and only 3(1.09%) were neutral to the statement, 27(9.8%) participants were disagreeing to the question and 20(7.3%) respondents were strongly disagreeing to the above question.
- ✓ Responses to question no.9th most of the respondents were strongly agree to the statement which is 54(19.6%) and 155(56.3%) participants were agree, 8(2.9%) were neutral to the question and 35(12.7%) respondents were disagree to the statement and 23(8.3%) were strongly disagree to the statement that Your expectations are fully meet with regard to doctors.
- ✓ Question no.10th predicted about the statement is most of the respondents were strongly agreed which is 49 (25.09%) and 147(53.4%) participants were agree to the statement this show that positive response to the question that Your expectations are fully meet with regard to nurses and only 3(1.09%) were remained neutral to the question, 37(13.4%) participants were disagree to the question and 19(6.9%) respondents were strongly disagree to the above question.
- ✓ Patient satisfaction is the dependent variable in Deneba hospital have a mean value of 2.89, which is below average. This indicates that the level of patient satisfaction is low within the hospital due to lack of responsiveness, tangibility, reliability, empathy and assurance. So, Deneba hospital should give an acute attention to maximize the level of patient satisfaction.

#### 4.4 Summary statistics on variables

**Table 10 5 Regression analysis of service quality with patient satisfaction**

Variable	Frequency	Mean	Standard Deviation	minimum	maximum
Responsiveness	379	4.03	0.995	1	5
Assurance	379	4.07	0.636	1	5
Tangible	379	3.92	0.663	1	5
Empathy	379	4.20	0.763	1	5
Reliable	379	4.17	0.713	1	5

According to Zaidaton & Bagheri (2009) the mean score below 3.39 was considered as low, the mean score from 3.40 up to 3.79 was considered as moderate and mean score above 3.8 was considered as high as illustrated by Comparison bases of mean of score of five-point Likert scale instrument.

The researcher uses various statistical data tools such as mean, standard deviation and frequency to analyze the data. The summary of all statistical data of all variables are evaluated based on 5-point likert scale from strongly agree to strongly disagree.

#### **4.4.2 Multicollinearity Testing**

Multicollinearity tests the condition whether the independent variables are correlated with one another. If there is no relationship between the independent variables, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change. In any practical context, the correlation between independent variables will be non-zero, although this will generally be relatively nonthreatening in the sense that a small degree of association between independent variables will almost always occur but will not cause too much loss of precision. However, a problem occurs when the independent variables are very highly correlated with each other, and this problem is known as multicollinearity (Halsey, et al 2015).

If the correlation coefficient is higher than 0.8, it is considered as the model consists of serious multicollinearity problem (Winship & Western 2016).

#### **4.4.3 Autocorrelation analysis**

One of the assumptions made on classical linear regression model is that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are 'auto-correlated' or that they are 'serially-correlated'. A test of this assumption is therefore required.

The Durbin Watson (DW) is one method to test autocorrelation. I.e. tests the relationship between an error and its immediately previous value. In order to conclude that there is no autocorrelation, DW must be two or near to two.

Ignoring autocorrelation when it is present is similar to those of ignoring heteroscedasticity. The coefficient estimates derived using OLS are still unbiased, but they are inefficient, i.e. they are not best linear unbiased estimators (BLUE), even at large sample sizes, so that the

standard error estimates could be wrong (Halsey, et al 2015). The researcher will use the Durbin Watson (DW) method of testing autocorrelation.

Correlation describes the strength between variables. According to Brooks (2008), correlation analysis measures the degree of linear association between dependent and independent variable.

The value of correlation coefficient ranges from -1 to 1.

**Table 11 correlation between service quality and patient satisfaction**

	patient satisfaction	Responsiveness	Assurance	Tangible	Empathy	Reliable
patient satisfaction	1.0000					
Responsiveness	0.183**	1.0000				
	0.000					
Assurance	0.301**	0.872**	1.0000			
	0.000	0.000	0.000			
Tangible	0.201**	0.970**	0.865**	1.0000		
	0.000	0.000	0.000			
Empathy	0.158**	0.954**	0.875**	0.959**	1.0000	
	0.002	0.000	0.000	0.000		
Reliable	0.129*	0.853**	0.756**	0.855**	0.882**	1.0000
	0.012	0.000	0.000	0.000	0.000	

Source: SPSS 23 output

The result of the above table indicates that there is a significant positive correlation between responsiveness and patient satisfaction with a correlation coefficient 0.183 and p-value 0.000 this is less than 0.05 therefore there is strong and statistically significance at 5% level of significance.

Assurance is positively related to patient satisfaction with a Pearson correlation coefficient 1=0.301 and p-value is 0.000 which is less than 0.05. Therefore, there is strong statistically significance at 1% level of significance.

Tangibility is positively related to patient satisfaction with a Pearson correlation coefficient  $r=0.201$  and p-value is 0.000 which is less than 0.05. Therefore, there is strong statistically significance at 5% level of significance.

Empathy is positively related to patient satisfaction with a Pearson correlation coefficient  $r=0.158$  and p-value is 0.000 which is less than 0.05. Therefore, there is strong and statistically significance at 5% level of significance.

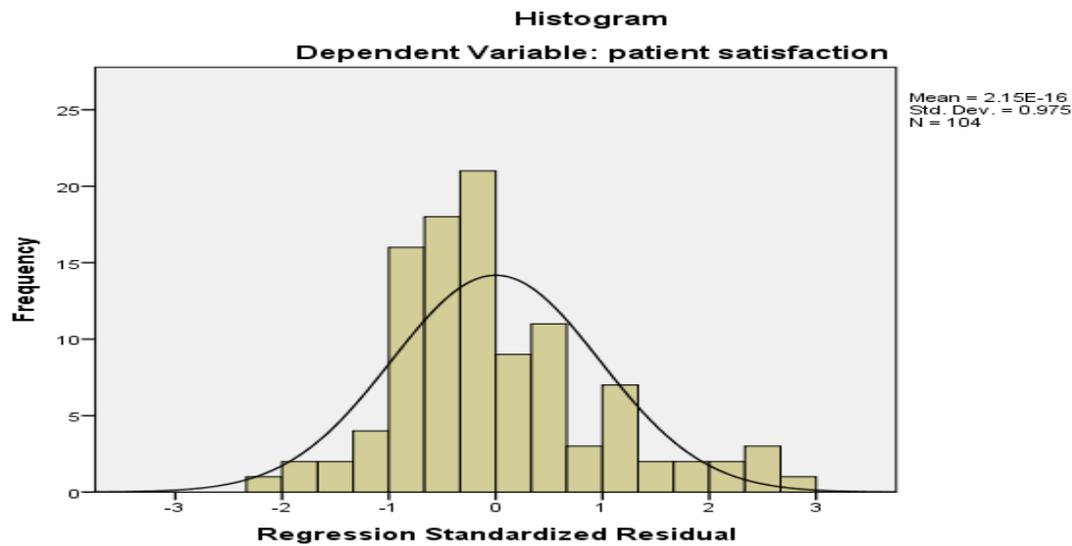
Reliable positively related to patient satisfaction with a Pearson correlation coefficient  $r=0.129$  and p-value is 0.12 which is less than 0.05. Therefore, there is strong and statistically significance at 1% level of significance.

#### **4.4.4 Normality Testing**

Normality testing is a requirement to conduct single or joint hypothesis tests of the model parameters. The purpose of normality testing is to know that all data of independent and dependent variables have normal distribution. In this research, normality will be tested based on BeraJarque (BJ) test. BeraJarque uses the property of a normally distributed random variable the mean, the variance, skewness and kurtosis. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures the fatness of the tails of the distribution. The normal distribution is not to be skewed and is defined to have a coefficient of kurtosis of 3. The BeraJarque normality tests result can also be seen on p-value. If the residuals are normally distributed, the histogram should be bell-shaped and the Bera--Jarque statistic would not be significant. This means that the p-value of the normality test should be bigger than 0.05 (Halsey, et al 2015).

As Field (2009), noted, that normality assumption is important while using regression and worthwhile, if we want to make inference about the population parameter from the sample parameters. If the mean of the residual is zero and constant variance the error is normally distributed. For this purpose, a histogram is drawn for the unstandardized error term with normal density on it. Figure 5.1 below shows the error term is normally distributed with zero mean and constant variance.

**Figure 1** normality Test



Source: SPSS23 output

#### 4.4.5 Multicollinearity Testing

Multicollinearity tests the condition whether the independent variables are correlated with one another. If there is no relationship between the independent variables, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change. In any practical context, the correlation between independent variables will be non-zero, although this will generally be relatively nonthreatening in the sense that a small degree of association between independent variables will almost always occur but will not cause too much loss of precision. However, a problem occurs when the independent variables are very highly correlated with each other, and this problem is known as multicollinearity (Halsey, et al 2015).

If the correlation coefficient is higher than 0.8, it is considered as the model consists of serious multicollinearity problem (Winship & Western 2016).

Multicollinearity refers to all explanatory variable are highly enter connected with the existence of linear association. According to Gujarati (2004), if multicollinearity is ideal the regression coefficients of independent variables are undetermined and difficult to measure their standard error.

**Table 12 Tolerance and VIF statistics for multicollinarty**

Variable	Tolerance(1/VIF)	VIF
Responsiveness	0.700	1.428
Assurance	0.488	2.051
Tangibility	0.524	1.909
Reliability	0.764	1.309
Empathy	0.649	1.541

Source: SPSS 23 output

Table 4.7 illustrates that the value of variance inflation factor for the above variable is less than 10%. So, this implies there is no multicollinearty problem between the explanatory variables.

#### **4.4.6 Heteroscedasticity Testing**

The errors do not have a constant variance is said to be Heteroscedasticity. The assumption of homoscedasticity, which reveals that the variance of the disturbance term is constant, is one of the important assumptions of the multiple regressions. If disturbance terms (errors) do not have constant variance, then it is said to be heteroscedastic (Gujarati, 2003).

If there is no heteroscedasticity OLS estimators will still give unbiased (and also consistent) coefficient estimates, but they are no longer best linear unbiased estimators' best linear unbiased estimators (BLUE). That is, they no longer have the minimum variance among the class of unbiased estimators (Halsey, et al 2015).

The researcher will use the Breusch-Pagan-Godfrey method of Heteroscedasticity testing.

According to Gujarati, 2004 Classical linear regression model assumes the variance of the error term is constant, this is known as homoscedasticity. If the variance of the error term is not the same, they are said to be heteroscedastic (Gujarati, 2004)

#### **4.4.7 Regression analysis**

Is refers to a systematic method that can be used to investigate one or more variables with dependent variables.

## Model summary

**Table 13 model summary**

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.526	0.277	0.240	0.793
a. Predictors: (Constant), Reliable, tangible, Empathy, responsiveness, assurance				
b. Dependent Variable: patient satisfaction				

Source: SPSS 23 output

From the above table we can understand that R- square- is statistical measure that tells the proportion of the variance for a dependent variable that is explained by an independent variable included in regression model R<sup>2</sup> also explains to what level the variance of one variable explains the variance of another variable. R squared value range from 0 to 1 and commonly stated as percentage from 0% to 100%. An R square of 100% indicates that, dependent variable is completely explained by independent variable of model. 0% shows the model explains none of the variability of the response data around its mean. The value of R-square in this study was 0.277. This indicates that, 27.7% of variation in patient satisfaction explained by explanatory variables the other remaining 72.3% of variation in patient satisfaction remained unexplained or explained by other factors which are not included in the model.

Adjusted R- square is a modified version of R- square that has been adjusted for the number of regression models that contains different number of predictors. In this study the value of adjusted R-square is 24%. This indicates that, most of the independent variables included in the regression model are not significant in explaining patient satisfaction.

### **4.4.8 Analysis of variance ANOVA**

Analysis of variance (ANOVA) is an analysis tool used in statistics that splits an observed aggregate variability found inside a data set into two parts: systematic factors and random factors. The systematic factors have a statistical influence on the given data set, while the random factors do not. Analysts use the ANOVA test to determine the influence that independent variables have on the dependent variable in a regression study.

**Table 14 Analysis of ANOVA**

ANOVA						
Model		Sum of Squares	Degree of freedom	Mean Square	F	Sig.
1	Regression	23.596	5	4.719	7.495	.000
	Residual	61.703	98	.630		
	Total	85.300	103			
a. Dependent Variable: patient satisfaction						
b. Predictors: (Constant), Reliable, tangible, Empathy, responsiveness, assurance						

Source: SPSS 23 output

The above table shows that the identified value of F-stat is 74.495 and is significant as the level of significance is ( $p < 0.01$ ). This indicates that the overall independent variable used for the study is significantly good in explaining the variation of dependent variable which is patient satisfaction in Deneba Hospital.

#### 4.4.9 Multiple linear regression

Multiple linear regression (MLR), also known simply as multiple regression, is a statistical technique that uses several explanatory variables to predict the outcome of a response variable. The goal of multiple linear regression (MLR) is to model the linear relationship between the explanatory (independent) variables and response (dependent) variable.

**Table 15 coefficient of multiple regression analysis**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.361	.644		5.220	.000
	responsiveness	-.001	.094	-.002	-.016	.987
	Assurance	-.221	.176	-.155	-1.256	.212
	Tangible	-.566	.163	-.412	-3.471	.001
	Empathy	.130	.117	.109	1.113	.268
	Reliable	.376	.136	.294	2.759	.007

Source: SPSS 23 output

From the above table unstandardized coefficients specified that how much the dependent variables vary with that of independent variables, when all other independent variables are held constant. The beta coefficients showed that how and to what extent that responsiveness, assurance, tangible, Empathy, Reliable factor have effect on patient satisfaction in the hospital. It has been found that, tangibility (beta = -0.412 t= -3.471, p<0.05), has the highest effect on patient satisfaction in the hospital followed by reliability (beta = 0.294 t= 2.759, p<0.05).

$$\text{Psi} = 0.566\text{TA}_i + 0.376\text{RE}_i$$

Where, PS = patient satisfaction  
 RS = responsiveness  
 ASU = assurance  
 TA = tangibility  
 EM = empathy  
 RE = reliability

In the above part of the study the relationship between dependent variable which means patient satisfaction and independent variable which is responsiveness, assurance, tangibility, empathy, and reliability was discussed.

In the above regression output, Beta Coefficient shows that the level of effect of each explanatory variable on dependent variable it indicates the direction of the relationship. Positive beta coefficient indicates the variable has positive effect on dependent variable whereas negative beta coefficient the variable has negative effect on dependent variable.

### **Hypothesis 1:**

#### ***H1: responsiveness has no positive effect on patient satisfaction***

As illustrated in the above table the coefficient of regression analysis indicates that responsiveness has moderate positive and statistically significant effect on patient satisfaction (Beta = 0.001, p-value = 0.000). This indicates that, keeping other things constant, if the mean score value of responsiveness increase by 1 unit, on average the mean score value of patient satisfaction increase by 0.001 unit.

So, the researcher rejects the null hypothesis (Ho) and accepted the alternative hypothesis that means responsiveness has negative and significant effect on patient satisfaction.

## **Hypothesis 2:**

### ***H1: assurance has no positive effect on patient satisfaction***

The coefficient of assurance has positive and statistically significant effect on patient satisfaction (Beta = 0.221, p-value = 0.001) this indicates that, other explanatory variables remains constant, if the mean score value of assurance increase by 1 unit on average the mean score of patient satisfaction increase by 0.221 unit and statistically significance at 1% significance level. And the researcher accepted the alternative hypothesis and reject the null hypothesis this means assurance has significant effect on patient satisfaction.

## **Hypothesis 3:**

### ***H1: tangibility has no positive effect on patient satisfaction***

The coefficient of tangibility has positive and statistically significant effect on patient satisfaction (Beta = 0.566, p-value = 0.001) this indicates that, other explanatory variables remains constant, if the mean score value of tangibility increase by 1 unit on average the mean score of patient satisfaction increase by 0.566 unit and statistically significance at 1% significance level. And the researcher accepted the alternative hypothesis and reject the null hypothesis this means tangibility has significant effect on patient satisfaction.

## **Hypothesis 4:**

### ***H1: empathy has no positive effect on patient satisfaction***

The coefficient of empathy has positive and statistically significant effect on patient satisfaction (Beta = 0.130, p-value = 0.268) this indicates that, other explanatory variables remains constant, if the mean score value of empathy increase by 1 unit on average the mean score of patient satisfaction increase by 0.130 unit and statistically significance at 1% significance level. And the researcher accepted the alternative hypothesis and reject the null hypothesis this means empathy has significant effect on patient satisfaction.

## **Hypothesis 5:**

### ***H1: reliability has no positive effect on patient satisfaction***

Similarly, the regression coefficient for reliability has positive and statistically significant effect on patient satisfaction (Beta = 0.376, p-value = 0.007). This implies that, other explanatory variables remain constant, if the mean score value of reliability increase by 1 unit on average the mean score value of patient satisfaction increase by 0.376 unit.

Similarly, the regression coefficient for reward has positive and statistically significant effect on employee job satisfaction (Beta = 0.067, P-value = 0.000). This indicate that, other explanatory variable remains constant, if the mean score value of workplace reward increases by 1 unit on average the mean score value of employee job satisfaction increases by 0.067 unit. This implies reliability increase patient satisfaction.

The researcher rejects the null hypothesis and accepted the alternative hypothesis, this means reliability has positive effect on patient satisfaction.

## CHAPTER FIVE

### SUMMARY CONCLUSION AND RECOMMENDATION

#### Introduction

This part included summary of findings conclusion and recommendation for further studies and investigation.

#### 5.1 summary

The objective of this study was to analyze the effect of service quality on patient satisfaction by using major factors or dimension like responsiveness, assurance, tangibility, empathy, and reliability. The research was undertaken in Deneba hospital in Siyadebrna Wayu Wereda in Deneba town. And this study was conducted with close ended question to the target population 35000 and the sample size was 399 and out of this 379 was participated properly. And the research analyzed by using SPSS 23.

The sum of the independent variable average on cronbach alpha value is ( $\alpha = 0.7502$ ).

The Pearson correlation coefficient results showed a significant positive strong relationship between tangibility and assurance with patient satisfaction. Though positive significant but moderate relationship is found between responsiveness, empathy and reliability with patient satisfaction.

The mean value shows that all the five variables are the highest mean value. According to Zaidaton & Bagheri (2009), the mean score above 3.8 was considers as high as illustrated by Comparison bases of mean of score of five-point Likert scale instrument. From this we can understand that patients of the hospital are agreed or satisfied with the service quality dimensions.

Pearson correlation coefficient results showed a significant positive strong relationship between responsiveness, assurance, tangibility, reliability, empathy with patient satisfaction.

The model summary of multiple regression exposed that, 27.7% of variation in patient satisfaction is explained by selected explanatory variables and the remaining 72.3% is explained by other variables which are not included in the model.

## **5.2 conclusion**

From the finding of this study it is concluded that service quality of hospital positively affect patient satisfaction. The result of the study also revealed that environment of the hospital, behavior of the staff with patients is good, the cleanness of the hospital room also good then by this reason patients will satisfied. Better service quality is play an important role in any organization especially in health care organization. It is concluded that service quality has positive effect on patient satisfaction. The result of this current study show that any hospital that providing good service to their customer or patients, then the patient will be satisfied and also they recommended to their friends, relatives for better treatment to visit this hospital. With regard to this the patient ratio increase due to good service quality.

- Tangibility has strong positive relationship with that of patient satisfaction in correlation analysis. So, it has been concluded that tangibility has strong and high effect on patient satisfaction
- Assurance also has strong positive relationship with patient satisfaction in correlation analysis.
- Correlation analysis reveal that there is moderate negative relationship between responsiveness and empathy with the same thing with that of reliability with patient satisfaction. So, it has been concluded that responsiveness, empathy, and reliability has moderate impact on patient satisfaction.
- based on multiple linear regression analysis there is positive related between empathy and reliability with that of patient satisfaction.

## **5.3 Recommendation**

This study attempted to recommend on some findings that will obtained during the study. Based on this study doctors, nurses, and other staff members try to continue learn how better their service quality at any level. And the hospital should stay its better service quality that is strongly related to patient satisfaction. And try to correct the negative implications of patients and also try to open their organizations to other researchers for further investigation.

The researcher also attempts to recommend the major factors that are affect patient satisfaction the non-computerized service necessities particularly at card room, lack of information where patients want to going.

The researcher finding indicates that most of hospital employee were not experienced and knowledgeable there was highly compromise service quality so, the institution work on employee performance development through short term and long term training, experience sharing, educational updating to, on work training and supervision so as to improve patient satisfaction.

The researcher also recommend as medical drug/product/supplies are relatively adequate and consistently available to improve its supply the institution should work on material availability procurement department to be available on time.

From the finding employee willingness to serve, employee attention for individual patient at hospital are moderately negative related with patient satisfaction and give variety of training for employee in order to improve their understanding and safe the patient. The organization facilitate psychological concept training to be employees are handle their patient as humanity beyond their professionally.

From finding Work place Reward is positive strong relationship to employees job satisfaction; appropriate reward will lead employee to be encourage at work which also helps to increase their satisfaction.

From the finding Responsiveness is positive relationship with patient satisfaction; proper responsiveness will lead to increase patient satisfaction. Therefore the researcher recommended to the hospital to continue this good deed/will encourage the employee by reward and strengthen by training in order to satisfy their patient more than that.

This research was undertaken in Deneba hospital; as such the finding of this study may not represent the entire hospital through Ethiopia. Therefore, using the finding of this research as a bench mark other researchers need to conduct research in this area.

## 6. Reference

- Abebe, A., Getahun, M., Mapaseka, S. L., Beyene, B., Assefa, E., Teshome, B., & Mwenda, J. M. (2018). Impact of rotavirus vaccine introduction and genotypic characteristics of rotavirus strains in children less than 5 years of age with gastroenteritis in Ethiopia: 2011–2016. *Vaccine*, *36*(46), 7043-7047.
- Agustina, R., Dartanto, T., Sitompul, R., Susiloretni, K. A., Achadi, E. L., Taher, A., & Khusun, H. (2019). Universal health coverage in Indonesia: concept, progress, and challenges. *The Lancet*, *393*(10166), 75-102.
- Al-Damen, R. (2017). Health care service quality and its impact on patient satisfaction “case of Al-Bashir Hospital”.
- Amin, M., & Nasharuddin, S. Z. (2013). Hospital service quality and its effects on patient satisfaction and behavioural intention. *Clinical Governance: An International Journal*.
- Bhangu, A., Ademuyiwa, A. O., Aguilera, M. L., Alexander, P., Al-Saqqa, S. W., Borda-Luque, G., & Iftekhar, F. (2018). Surgical site infection after gastrointestinal surgery in high-income, middle-income, and low-income countries: a prospective, international, multicentre cohort study. *The Lancet Infectious Diseases*, *18*(5), 516-525.
- Kulsum, U., & Syah, T. Y. R. (2017). The Effect of Service Quality on Loyalty with Mediation of Patient Satisfaction. *International Journal of Business and Management Invention*, *6*(3), 41-50.
- Roth, G. A., Johnson, C., Abajobir, A., Abd-Allah, F., Abera, S. F., Abyu, G., & Ukwaja, K. N. (2017). Global, regional, and national burden of cardiovascular diseases for 10 causes, 1990 to 2015. *Journal of the American College of Cardiology*, *70*(1), 1-25.
- Zamil, A. M., Areiqat, A. Y., & Tailakh, W. (2012). The impact of health service quality on patients' satisfaction over private and public hospitals in Jordan: a comparative study. *International Journal of Marketing Studies*, *4*(1), 123.
- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1988). Communication and control processes in the delivery of service quality. *Journal of marketing*, *52*(2), 35-48.
- Zelalem, A., Endeshaw, M., Ayenew, M., Shiferaw, S., & Yirgu, R. (2017). Effect of nutrition education on pregnancy specific nutrition knowledge and healthy dietary

practice among pregnant women in Addis Ababa. *Clinics in Mother and Child Health*, 14(3), 265.

## 7. Appendix

**Debrebrehan University**  
**College of Business and Economics**  
**Department of Management**  
**Master of Business Administration**

### Questionnaire

The purpose of this study is to find out the level of patient satisfaction with regard to the service quality. It may be beneficial to those who are interested to make further study on the subject area. Thus, your free will and cooperation in giving the reliable information is very important. Filling out, these questionnaires may not take that much of your time. Any information provided will only be used for academic purpose. As a result, it will be kept confidential and utmost anonymity.

General instruction

1. Please do not write your name in the questionnaires
2. Your participation is voluntaries. There is no penalty if you do not participate.
3. Please simply circle on the appropriate choices to the closed-ended questions

Thank you in advance for your cooperation

Perceptions: The following statements deal with the perceptions of service experienced in the hospital. Please, show the extent to which these statements reflect your perception of service in Deneba hospital.

“Strongly Agree” =5, “Agree” =4, “Neutral” =3, Disagree” =2, and “Strongly Disagree” =1

### **Service quality**

Statement	scores				
1. The hospital should have modern clinical equipment's?	1	2	3	4	5
2.The employees handling admission in hospitals should be polite?	1	2	3	4	5
3. Hospitals handled emergency situations well?	1	2	3	4	5
4. The physical environment of the hospital should be clean?	1	2	3	4	5
5. When hospital employee promises to do something by a certain time, they should do so.	1	2	3	4	5
6. Hospitals have knowledgeable and experience doctors..	1	2	3	4	5
7. The hospital should perform the service right the first time.	1	2	3	4	5
8. Materials associated with services will be visually appealing in hospitals.	1	2	3	4	5
9. Hospitals have clean washroom, cleans room/wards without foul smell.	1	2	3	4	5

10. Employees should make information easily obtainable by the patient.	1	2	3	4	5
11. Employees should give prompt service to patients.	1	2	3	4	5
12. Employees are always willing to help patients.	1	2	3	4	5
13. Employees in a hospital should never be too busy to respond to patients' requests.	1	2	3	4	5
14. The behavior of employees in hospital should instill confidence in patients	1	2	3	4	5
15. patients should be able to feel safe in their service with employees in the hospital	1	2	3	4	5
16. Their employees should be polite.	1	2	3	4	5
17. Employees of the hospital should have the knowledge to answer patients' questions	1	2	3	4	5
18. The hospital should give patients individual attention	1	2	3	4	5
19. Their operating hours should be convenient to all their patients.	1	2	3	4	5
20. Hospitals will give prompt discharge to their patients.	1	2	3	4	5
21. They should have their patients' interest at heart.	1	2	3	4	5
22. The employees should understand the specific needs of their patients.	1	2	3	4	5
23. The hospital should have enough variety of products/medicine	1	2	3	4	5
24. The products/medicine in the hospital should be of good quality	1	2	3	4	5
25. The hospital has up-to-date equipment.	1	2	3	4	5

Perceptions: The following statements deal with the perceptions of service experienced in the hospital. Please, show the extent to which these statements reflect your perception of service in Deneba hospital.

“Strongly Agree” =5, “Agree” =4, “Neutral” =3, Disagree” =2, and “Strongly Disagree” =1

Put a cross (X) on your choice of answer.

### Patient satisfaction

Statement	scores
1. Indoor services are satisfactory.	1   2   3   4   5
2. Hospital is not fully conscious of your problems.	1   2   3   4   5
3. Hospitals never welcome your suggestion	1   2   3   4   5
4. Doctors are available throughout their duty.	1   2   3   4   5
5. Up-to-date health care techniques are well maintained.	1   2   3   4   5
6. Overall supportive facilities are excellent	1   2   3   4   5
7. The technical facilities blood bank, lab, etc. are good.	1   2   3   4   5
8. You always visit this hospital for all types of treatments.	1   2   3   4   5
9. Your expectations are fully meet with regard to doctors.	1   2   3   4   5
10. Your expectations are fully meet with regard to nurses.	1   2   3   4   5