

**CUSTOMER SERVICE SATISFACTION ANALYSIS ON HOSPITAL INFORMATION SYSTEM USING EMERGING TECHNOLOGY IN BAZE UNIVERSITY HOSPITAL**

**BY**

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**CHAPTER ONE**

**INTRODUCTION**

**1.1 Background to the Study**

Hospitals are extremely complex organizations with distinctive characteristics, such as a large number of departments and units, that coordinate care for patients, due to the amount of operations and processes, they always rely on Hospital Information Systems (HIS) in order to aid in management, diagnosis, and even education for a better more efficiency and effective procedure and services but many hospitals lack quality of service because they rely on manual processes (Sharon, Rose & Venkatesh, 2016). The six main proportions or dimensions of a quality of information system are information quality, system quality, utilizations, individual impact, user satisfaction, and organizational effect.

The hospital information system is playing an amazing role in supporting health personnel, reducing medical errors, enhancing patient care quality, and increasing patient care productivity. HIS is an integrative and comprehensive information system that is designed to manage administrative, financial, and medical circumstances in hospital but lack dimension of qualities.

HIS encompass electronic health records that provide physicians with the comprehensive health histories of their patient on a real-time basis. In the utilization of the information system the authorities will be able to create a structured patient history database in such a way that the recorded data can enhance patient care, quality of diagnosis, and personnel productivity of doctors, and at the end of the day will increase the hospital’s incomes (Ozel & Sebetci, 2018).

In Malaysia, the government implemented HIS on a national scale to increase the technology's usefulness in improving healthcare delivery, although little is known about the benefits and challenges of HIS adoption in each institution (Hertin & Al-sanjary 2018). The deployment of HIS aims to improve healthcare quality, increase productivity, and make data collection and recording simple. Compared to a manual approach, HIS can also reduce errors and improve employee communication.

The HIS is defined as a coordinated electronic framework that gathers, stores, retrieves, and displays general patient information and data, such as patient history data, results of research center tests, judgments, charging, and other related clinic strategies that are used as a part of a few offices inside healthcare facilities. Beginning in 1999, the Malaysian Ministry of Health began to display HIS to encompass both clinical and non-clinical data systems. Since then, challenges have been managed in doctor's facilities in order to achieve the presentation's goals.

HIS can provide easy access to patient data, decide on clinical decision support, maintain information on the quality and security of healthcare services, and improve the request and reception of lab tests as well as demonstrative images. Simply said, it is more effective than paper-based systems in a few ways.

Kuo, Liu, Talley, and Pan, (2018) said that previous evidence found that user satisfaction has a direct relation with information system usage purpose. Earlier studies found that the level of user satisfaction was positively related to their intention to continuously use information systems. It’s clear that the users are more satisfied with the HIS, but the possibility of integrating the use of HIS for future patient care is declining. Consequently, it’s strategically crucial for administrative managers to comprehend and identify the primary attributes of hospital information systems that are perceived by users as becoming important, and also to investigate how users perceive the given performance of those attributes once adoption is implemented.

This is likely a result of the widespread perception that HIS can improve and enhance the provision of services to clients, both internal and external. External user groups are made up of suppliers, creditors, service providers, patients, and their relatives, while internal user groups include staff employees like doctors, nurses, administrators, managers, and researchers but still, lack experience, knowledge, competence, requirements, and expectations in the relevant fields have collapsed of many hospitals globally (Suleiman, 2023; Yusuf, Ayoku, & Funmilayo, 2022; George & Kandiri, 2018).

Expectations and requirements are derived from what users observe, hear, and understand while the system functions for the level of customer satisfaction determines how well these systems perform. DeLone and Mclean model (2003) argued that six criteria for evaluating the effectiveness of an information system, including system quality, information quality, service quality, utilization, user satisfaction, and net benefits, several academics have undertaken qualitative studies on the success of HIS.

The previous studies on customer satisfaction, and used a quantitative research approach to highlight the aspects that affect HIS. End-user satisfaction, which has a direct correlation to use and is a measure of system acceptability, is a crucial component of every hospital information system's effective implementation that has a direct bearing on the hospital's growth (DeLone & Mclean, 2014). Satisfaction with the system measured the acceptability and sustainability of HIS in the healthcare organization.

In many cases, hospitals are declining as a result of combination of so many factors, and addressing them requires customer service analysis in implementing HIS for the improvement in any health care delivery (Kuo et al, 2018). It’s essential for hospitals to adopt the evolving health care technology and also contentiously seek opportunities for improvement to remain viable and provide quality care to their community to avoid future decline (Suleiman, 2023; Kuo et al, 2018).

In Nigeria, the number of Primary Health Care (PHC) is overwhelmed and people die due to the lack of use of HIS in the health care community, which results from hospital declined (Suleiman, 2023; Yusuf, Ayoku, & Funmilayo, 2022). The study is to investigate the effect of customer service satisfaction analysis on hospital information systems by analyzing the overall level of customer service satisfaction in Baze university hospital, analyze the level of waiting times and appointment scheduling and examine some particular areas of improvement that influence the hospital information system

**1.2 Statement of the Problem**

Major Nigerian healthcare institutions have been increasing their spending on Hospital Information Systems (HIS) Kanaracus (2008) and annual budgets for about 2 decades now, even when the nation is experiencing economic depression. This finding is consistent with research by Kanaracus (2008) entitled "Measuring Information Systems Success: Models, Dimensions, Measures, and Interrelationships." In terms of Nigeria’s healthcare organization, some of the healthcare challenges were poor quality of healthcare services, patients being uninformed, and increased waiting time (Suleiman, 2023). Therefore, there is need for every healthcare organization to have a good framework that measures their customer service satisfaction and continuously improves and protects their assets as technology and information evolves.

The problem of customer service satisfaction analysis on hospital information systems using emerging technology in Baze University Hospital is a complex issue that involves the assessment of patient experience and satisfaction with the hospital’s information systems. This problem encompasses the evaluation of how emerging technologies are integrated into the hospital’s information systems to enhance customer service and improve overall patient satisfaction. The analysis involves understanding the impact of these technologies on the efficiency, effectiveness, and user-friendliness of the hospital’s information systems, as well as their influence on patient care and satisfaction. Hence, the study investigates the effect of customer service satisfaction analysis on hospital information systems in Baze University, Abuja.

**1.3 Research Questions**

The study raised the following research questions:

1. How does the overall level of customer service satisfaction at Baze University Hospital react to the hospital information system?
2. How does waiting time and appointment scheduling impact the hospital information system at Baze University, Abuja?
3. In what manner do the specific areas of improvement impact the hospital information system at Baze University, Abuja?

**1.4 Aim and Objectives**

The aim of the study is to investigate the effect of customer service satisfaction analysis on hospital information systems in Baze University, Abuja.

The specific objectives are to:

1. To analyze how the overall level of customer service satisfaction influence the hospital information system.
2. To analyze the impact of waiting times and appointment scheduling on the hospital information system
3. To examine the particular areas of improvement that influence the hospital information system

**1.5 Research Hypotheses**

The study raised the following hypotheses for the study.

1. The overall level of customer service satisfaction does not exert a substantial impact on hospital information systems
2. The waiting time and appointment scheduling do not exert a important impact on the hospital information systems
3. Specific areas of improvement do not have a significant impact on hospital information systems

**1.6 Significant of the Study**

The significance of a study on customer service satisfaction analysis on hospital information system is essential for several motives such as Improving Patient Experience, Quality of Care, Enhancing Communication, Identifying Issues, Patient Engagement, Competitive Advantage, Compliance and Data Security, Continuous Improvement.

**1.7 Scope of the Study**

The scope of a study on customer service satisfaction analysis related to a hospital information system should be well-defined to ensure the research objectives are achievable and results are meaningful. The scope was to investigate the effect of customer service satisfaction.

1. Specify the hospital(s) where the research will be conducted.
2. Identify the target population for the study, which may include patients, caregivers, healthcare providers, and administrative staff.
3. Describe the methods for collecting data on customer service satisfaction. This could involve surveys, interviews, focus groups, or a combination of these approaches.
4. Clearly define the components of the hospital information system that will be assessed. This might include electronic health records, patient portals, appointment scheduling systems, billing systems, and more.
5. Specific research objectives, such as assessing overall satisfaction, identifying areas of improvement, or understanding the impact of the information system on patient experience.
6. Detail the satisfaction metrics that will be evaluated. These could encompass aspects like ease of use, data security, system reliability, speed of service, and staff responsiveness.
7. Explain the statistical and analytical methods that will be employed to process and interpret the data collected. This could involve quantitative and qualitative analysis, as well as statistical tests.
8. Specify the study's duration and the timeline for data collection, analysis, and reporting.
9. Acknowledge the potential limitations of the study, such as the possibility of response bias in surveys or limitations in the generalizability of results.
10. Suggest potential areas for further research or expansion of the study
11. Recommendations & Reporting

**1.8 Limitation of the Study**

The study of customer service satisfaction analysis on hospital information systems using emerging technology in Baze University Hospital may encounter several limitations. These limitations can impact the validity and generalizability of the findings. Some of the potential limitations include:

1. Time Constraints: Time constraints could pose a limitation to the study, particularly if there are restrictions on the duration allocated for data collection and analysis. This limitation may impact the depth and comprehensiveness of the research findings.
2. Sample Size: The study may face limitations related to the sample size, which could affect the representativeness of the findings. If the sample size is small, it may not accurately reflect the perspectives and experiences of a diverse patient population.
3. Data Collection Methods: The methods used to collect data for the analysis may have limitations. For instance, if the data is collected through surveys or interviews, there may be issues related to response bias or social desirability bias, which could impact the accuracy of the results.

**1.9 Definition of Terms**

1. **Hospital Information Systems:** Is a comprehensive software or application solution designed to manage various aspect of hospital’s operations and administrative processes. HIS is a critical component of healthcare information technology and also plays a better role in improving the efficiency, quality and patient’s care within a healthcare facilities.
2. **Customer Service Satisfaction:** Refers to the level of contentment, satisfaction or fulfilment experienced by a customer in response to the service provided by an organization, business or company.
3. **Healthcare Organization:** Is a formal entity or group that that provide medical services, manage healthcare facilities, or coordinate healthcare-related activities.
4. **Overall level of customer service satisfaction:** Refers to the extent to which customer are content with the quality and effectiveness of the service provided by an organization, business or company.
5. **Waiting time and appointment scheduling:** Waiting time management and appointment scheduling entail monitoring the amount of time patients spend in lines or waiting for medical services, as well as scheduling appointments to maximize healthcare resource usage.
6. **Specific improvement areas:** Refers to specific areas or components of a system, process, or organization that need to be improved or refined in order to achieve specific goals or objectives

**CHAPTER TWO**

**LITERATURE REVIEW AND THEORETICAL FRAMEWORK**

**2.1 Introduction**

This chapter provides a literature-based review on the evolution and evaluation of existing customer service satisfaction analysis. The chapter is divided into the two sections. The first section provides a literature review and the second section provides theoretical framework.

**2.2 Reviewed Related work**

According to Suleiman, (2023) this study examined healthcare information system adoption and customer (patient) satisfaction of selected private hospitals in Kogi State. The specific objectives are to (i) examined the effect of service quality of health information system adoption on customer patronage of selected private hospitals in Kogi State. The study also investigated the effect of system quality of electronic health record adoption on customer loyalty in selected private hospitals in Kogi State. The Study adopted survey research design to study the research objectives. The population of the study comprises of five digitalized hospitals in Kogi State The study adopted Godden model for the infinite (unknown) population of customers (patients). The result of the study showed that there is a significant relationship between service quality of health information system adoption and customer patronage in selected private hospitals in Kogi State with R2 value of 0.912 and the significance level which is less than 0.005. The second hypothesis showed that there is significant relationship between system quality of electronic health record adoption and customer loyalty of selected private hospitals in Kogi State with the R2 value of 0.880 and the significance level which is less than 0.005. The study recommended that private health providers must improve on the reliability and accurate of the health information system to avoid time wastage (arrival, waiting and service time) in order to satisfy the customers. There should be adequate provision for automated patient record system, information sharing system, electronic healthcare form system and computerized provider order entry system to attract loyal customers.

According to Wang, (2011) the relationship between a doctor and a patient plays an important role in patient satisfaction with health-care services. It has become an important and contentious issue in China’s health-care reform. This study uses service fairness as a theoretical lens to investigate the influence an implementation of a patient-accessible hospital information system (HIS) has on doctor–patient relationships and patient satisfaction. We developed a research model that relates patient-accessible HIS implementation with perception of service fairness, doctor–patient relationships, and patient satisfaction. Data were collected from patients in one of the biggest hospitals in East China that has implemented patient-accessible HIS. Results of the study show that patient-accessible HIS promotes patients’ perception of service fairness, improves doctor–patient relationships, and increases patient satisfaction.

According to Vembri (2018) As a major health referral centre, the hospital demanded to provide comprehensive services provided by a multi-disciplinary team according to the needs of patient. In the expansion of a growing number of hospitals in Yogyakarta especially Sleman area where retreat acquire customers even more stringent, it is necessary to increase the quality of services. There are five determinants of service quality namely: reliability, responsiveness, assurance, empathy, and tangible. Collecting data is done by observation and distributing questionnaires to 70 respondents, and Importance-Performance Analysis and Customer Satisfaction Index are used to determine satisfaction level of outpatients. As a results, six out of twenty attributes need improvement, namely: a) The condition of the hospital is clean, comfortable and tidy; b) Guidance and information boards poly is easy to see and read; c) The ease and accuracy of obtaining information for patients (referrals, lab results, etc.); d) The hospital staff has a quick response to the needs of patients; e) Attention physicians in managing patients and willingness to provide a particular time for consultation; and f) The prescribed medication is suitable and safe. It is known that the value of CSI by 76% means the service is not satisfied the patient.

According to Young, (2013) Intensified competitiveness in the healthcare industry has increased the number of healthcare centers and propelled the introduction of customer relationship management (CRM) systems to meet diverse customer demands. This study aimed to develop the information system success model of the CRM system by investigating previously proposed indicators within the model. The evaluation areas of the CRM system includes three areas: the system characteristics area (system quality, information quality, and service quality), the user area (perceived usefulness and user satisfaction), and the performance area (personal performance and organizational performance). Detailed evaluation criteria of the three areas were developed, and its validity was verified by a survey administered to CRM system users in 13 nationwide health promotion centers. The survey data were analyzed by the structural equation modeling method, and the results confirmed that the model is feasible. Information quality and service quality showed a statistically significant relationship with perceived usefulness and user satisfaction. Consequently, the perceived usefulness and user satisfaction had significant influence on individual performance as well as an indirect influence on organizational performance. This study extends the research area on information success from general information systems to CRM systems in health promotion centers applying a previous information success model. This lays a foundation for evaluating health promotion center systems and provides a useful guide for successful implementation of hospital CRM systems.

According to Novitasari, (2022). The purpose of this study was to analyze Relationship between Service Excellent and Quality Service, Relationship between Service Excellent and Patient Satisfaction, Relationship between Service Quality and Quality Service , Relationship between Service Quality and Patient Satisfaction. The data is obtained through questionnaires distributed online through social media, the respondents of this study were 400 employees of the hospitals in Banten who were selected through simple random sampling method. Analysis of data processing using Structural Equation Modeling (SEM) with SmartPLS 4.0 software tools. The stages of PLS ​​analysis using smartpls 3 include 3 stages, namely: The outer model testing phase to test the validity & reliability of indicators and constructs, the Goodness of fit model testing phase to test the model's predictive power and model feasibility, The inner model testing phase to test the significance the effect of exogenous variables on endogenous variables. From the research results obtained, it can be concluded Service Excellent have positive and significant effect on Quality Service , Service Excellent have positive and significant effect on Patient Satisfaction, Service Quality have positive and significant effect on Quality Service, Service Quality have positive and significant effect on Patient Satisfaction.

**2.2.1** **Summary of related literature reviewed**

**Table. Summary of related literature reviewed**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/NO** | **Author(s)** | **Approach** | **Finding** | **Limitations** |
| **1** | Suleiman, (2023) | This study examined healthcare information system adoption and customer (patient) satisfaction of selected private hospitals in Kogi State | The specific objectives are to (i) examined the effect of service quality of health information system adoption on customer patronage of selected private hospitals in Kogi State. The study also investigated the effect of system quality of electronic health record adoption on customer loyalty in selected private hospitals in Kogi State. | The Study adopted survey research design to study the research objectives. The population of the study comprises of five digitalized hospitals in Kogi State The study adopted Godden model for the infinite (unknown) population of customers (patients). The result of the study showed that there is a significant relationship between service quality of health information system adoption and customer patronage in selected private hospitals in Kogi State with R2 value of 0.912 and the significance level which is less than 0.005. |
| 2 | Wang, (2011) | The relationship between a doctor and a patient plays an important role in patient satisfaction with health-care services. | It has become an important and contentious issue in China’s health-care reform. This study uses service fairness as a theoretical lens to investigate the influence an implementation of a patient-accessible hospital information system (HIS) has on doctor–patient relationships and patient satisfaction. | We developed a research model that relates patient-accessible HIS implementation with perception of service fairness, doctor–patient relationships, and patient satisfaction. Data were collected from patients in one of the biggest hospitals in East China that has implemented patient-accessible HIS. Results of the study show that patient-accessible HIS promotes patients’ perception of service fairness, improves doctor–patient relationships, and increases patient satisfaction. |
| 3 | Vembri (2018) | As a major health referral centre, the hospital demanded to provide comprehensive services provided by a multi-disciplinary team according to the needs of patient | In the expansion of a growing number of hospitals in Yogyakarta especially Sleman area where retreat acquire customers even more stringent, it is necessary to increase the quality of services. There are five determinants of service quality namely: reliability, responsiveness, assurance, empathy, and tangible. Collecting data is done by observation and distributing questionnaires to 70 respondents, and Importance-Performance Analysis and Customer Satisfaction Index are used to determine satisfaction level of outpatients. | The ease and accuracy of obtaining information for patients (referrals, lab results, etc.); d) The hospital staff has a quick response to the needs of patients; e) Attention physicians in managing patients and willingness to provide a particular time for consultation; and f) The prescribed medication is suitable and safe. It is known that the value of CSI by 76% means the service is not satisfied the patient. |
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**2.2.2 Research Gap**

Customer service satisfaction analysis on hospital information systems using emerging technology is a critical area of research in the healthcare industry. As hospitals increasingly adopt and integrate emerging technologies into their information systems, it is essential to assess the impact of these technologies on customer service satisfaction. However, there exists a research gap in understanding the specific factors that contribute to customer service satisfaction in the context of hospital information systems utilizing emerging technology.

One significant research gap is the lack of comprehensive studies that specifically focus on the influence of emerging technology on customer service satisfaction within hospital information systems. While there is existing literature on customer service satisfaction in healthcare settings, there is a need for more targeted research that examines the unique challenges and opportunities presented by the integration of emerging technology in hospital information systems. Additionally, there is a dearth of empirical evidence that explores the relationship between specific emerging technologies, such as artificial intelligence, telemedicine, or blockchain, and customer service satisfaction within hospital settings.

Furthermore, there is a need for research that investigates the role of human-computer interaction and user experience design in shaping customer service satisfaction within hospital information systems utilizing emerging technology. Understanding how users interact with and perceive these technologies can provide valuable insights into improving customer service satisfaction. Moreover, there is limited research on the potential disparities in customer service satisfaction based on demographic factors such as age, gender, or socioeconomic status in the context of emerging technology adoption in hospital information systems.

In conclusion, the research gap lies in the need for targeted studies that go through into the specific impact of emerging technology on customer service satisfaction within hospital information systems. Addressing this gap can contribute to enhancing the quality of healthcare services and optimizing patient experiences in hospital settings.

**2.3 Concept of Hospital Information System (HIS)**

Yusof et al (2008) defined Hospital information system as massive integrated software/application system that support the comprehensive information requirements of hospitals that include patients, clinical, ancillary and financial management. While Acharyulu (2012) claimed that HIS have evolved as integration system of order entry, administrative, and departmental subsystem within a hospital. This has made it necessary for each and every healthcare staff in any hospital to have a knowledge of computer and make use of computer terminal in almost every day’s work.

The definitions and descriptions of HIS by various scholar agree on the role they play in improving the healthcare sector and also the provision of healthcare. Globally, over the past two decades, hospital in the world have made significant investment in adopting and implementing Hospital Information System (George & Kandiri 2018).

HIS can provide easy access to patient data, decide on clinical decision support, maintain information on the quality and security of healthcare services, and improve the request and reception of lab tests as well as demonstrative images. Simply said, it is more effective than paper-based systems in a few ways.

Also, with this, it’s likely a result of the widespread perception and understanding that HIS can improve and enhance the provision of services to clients, both internal and external. External user groups are made up of suppliers, creditors, service providers, patients, and their relatives, while internal user groups include staff employees like doctors, nurses, administrators, managers, and researchers (Yusuf, Ayoku, & Funmilayo, 2022).

**2.3.1 Effect of service quality on customer satisfaction**

To obtain products and service a consumer spends both money and resources in the form of time, energy and effort (Zeithaml *et al*., 2019). Service or product quality and customer satisfaction both have long been considered crucial for success and survival in today’s competitive market. But it is also important to understand what contributes to customer satisfaction that could be a key to achieve competitive advantage.

Consumers are now demanding higher quality in products than ever before (Leonard and Sasser, 2018). The search for quality is arguably the most important consumer trend of the 1980s (Rabin, 1983). The important feature of service ﬁrms is to focus on quality, the way it is produced and being offered to the ﬁnal customer. It is seen that continuous improvements in the quality of services perceived according to the consumer expectations positively affects the satisfaction level and customer’s perceptions about the company.

However, it is worth noting that there are several distinct conceptualizations of quality. Just as current quality is expected to have a positive inﬂuence on overall customer satisfaction (Anderson *et al.,* 2020). So, we can say that, the effect of expectations of quality on customer satisfaction is positive and signiﬁcant (Anderson *et al*., 2020). Delivering quality service is considered an essential strategy for success and survival in today’s competitive environment (Dawkins and Reichheld, 2021). The primary emphasis of both academic and managerial effort focused on determining what service quality meant to customers (Zeithaml *et al.*, 2019). Service quality is a determinant of whether a customer ultimately remains with or defects from a company (Zeithaml *et al*., 2019). In marketing management literature service quality takes a prominent position. It is usually deﬁned as customer’s impression of relative inferiority or superiority of service provide and its service. Also, it is often considered similar to overall attitude of customer towards company.

It is also observed that the increased interest in service quality by the firms is due to the fact that service quality is proved to be beneficial to maintain bottom line performance of the firm. Both Service quality and Customer satisfaction terms is being widely used by researchers interchangeably (Sureshchandar *et al.*, 2021).

Studies show that the overall experience with the service quality results in customer satisfaction which leads to customer loyalty. Where the overall service quality (as perceived) is viewed as a combination of core and relational aspects. In the service literature, core and relational quality are the most basic elements of services. Where core is “what is delivered” and relational is “how it is delivered” (McDougall and Levesque, 2019, 2020).

**2.3.2 Factors Effecting Service Quality and Satisfaction**

For marketers or service providers, achieving customer satisfaction is important because it is supposed to be an important motive of customer loyalty, repeated business (with customer) and positive word of mouth (Bearden and Teel, 2018). However, quality is not the only factor that effects the customer satisfaction, there are other factors besides quality like Performance, Expectations, (Mohr, 2020) desires and price factor affect the customer perceptions and the overall satisfaction level. Where quality of service is a descendent of customer satisfaction as described by Cronin and Taylor (2017), Service quality is not the only factor that has direct impact on customer satisfaction.

Identification of other elements beside quality that effects the satisfaction is critical. The other factors as described by Woodruff & Albert (2021) are value, corporate reputation, image and transaction satisfaction. On other hand factors that affect the service quality other than those of intangible nature like human interaction in service delivery, rest are of tangible nature, design and decor elements, the effect of atmospherics, employee appearance and appearance of equipment etc (Sureshchandar *et al.*, 2021). A clear understanding of all these factors that affect the relationship between service quality, and customer satisfaction results. In overall performance of the firm and can help to ensure better implementation of resource that firm required putting in place.

**2.3.3 Relationship between Service Quality and Customer Satisfaction**

During past few decades the interest of academics and researchers has been increased to measure the relationship between service quality and customer satisfaction. Both customer satisfaction and service quality are considered as extensive and vast subjects of research and many studies related to customer satisfaction are conducted in the area of service settings (Oliver, 2019).

In marketing theory, the consumer satisfaction category has the main position. It is based on the premise that the proﬁt is made through the process of satisfaction of consumers’ demands (Dubrovski, 2021). A further debate has considered whether service quality is a cause of customer satisfaction (Cronin, 2021). It then helps to identify a link between both constructs.

The Increased level of customer satisfaction, decreases the chances that customers will be pointing the flaws in the quality (Anderson *et al.,* 2020). In service settings it would offer a better perspective of the relative importance of service quality determinants by developing more comprehensive models of the drivers of customer satisfaction (Anderson *et al*., 2020). A great similarity between the customer satisfaction and service quality is observed, however researchers are careful to say that these two are different concepts (Spreng, 2018). Whereas a wide literature study shows that both concepts are distinct conceptually but also are closely related to each other (Parasuraman *et al.,* 2014) and any increase in one (quality) leads to increase in another (satisfaction) (Sureshchandar *et al.,* 2021). However, there are number of variations found in literature between service quality and customer satisfaction.

**2.3 Theoretical Framework**

After going through the literature review, the impact of service quality on customer satisfaction is identified by using different theories described by Zeithmal, 1996: 1988, Leonard and Sasser, 1982 & Tam, 2004, these theories described the role and importance of service quality that leads to customer satisfaction which is the main objective of all the service firms now days. Also, various authors described that quality of service along with other factors positively affect the level of customer satisfaction. Literature depicts that quality is not the only factor that affects satisfaction, there are various other factor that effects the both constructs as described by Moher, 2020; Albert Cruana 2021 and Sureschandar et al., 2021.

To better understand the effects of quality on customer satisfaction, the relationship between constructs is explained by using Oliver’s 2019, satisfaction and service quality model. Oliver’s model is further tested and modified by Spreng and Mackoy 2018, it specifies the effect of desires, perceived performance and expectations on overall service quality and satisfaction. Another model presented by Mcdougall & Levesque 2020, was used to explain the relationship between satisfaction and quality. It specifies the effect of core and relational quality and perceived value on customer satisfaction that ultimately effect switching and loyalty (repurchase) intensions. By considering the models from the literature a model is developed to explain the relationship between the both constructs.

After discussing the importance and factors affecting the relationships between service quality and satisfaction, further it is explained that how organizations can improve its quality standards to retain the customers. The improvements are described at three levels. For this purpose, different theories of Leonard, Parasuraman & Zeithmal 2019; Pfeffer *et al.*, 2020 and Parasuraman *et al*., 2021 are used.

First, Leonard theory described step by step strategies to improve the service standards in the organization. However, from Leonard et al research seven important steps are discussed in this study.

Second, Pfeffer theory explained the importance of managing work force in the organization in order to perform services as expected by the customers. Pfeffer theory explained thirteen practices out of which the seven important were chosen to discuss in this study.

Third, the Gap theory as explained by Parasuraman et al. 2019 is considered as most important in the service setting, was also covered in this study. Parasuraman et al., 2019 explained the gaps by describing how these gaps can be reduced in the organizations. These gaps are considered as main hurdles in delivering high performance services.

**CHAPTER THREE**

**RESEARCH METHODOLOGY**

**3.1 Introduction**

The research methodology for analyzing customer service satisfaction on hospital information systems using emerging technology at Baze University Hospital involves a systematic approach to gather, analyze, and interpret data. This process is crucial for understanding the effectiveness of the hospital’s information system and the impact of emerging technology on customer satisfaction.

**3.2 Research Design**

The research design will be quantitative in nature, utilizing surveys and questionnaires to collect data from patients, healthcare providers, and administrative staff. The use of quantitative methods will allow for the measurement of customer satisfaction levels and the identification of any correlations between the use of emerging technology and satisfaction levels.

**3.3 Population of the Study**

The population of the study “Customer Service Satisfaction Analysis on Hospital Information System Using Emerging Technology in Baze University Hospital” refers to the specific group or set of individuals that are focus of the research. In this case, the population would likely consist of patients, healthcare providers, and staff members at Baze University Hospital. The study aims to analyze customer service satisfaction in relation to the hospital information system, particularly focusing on the use of emerging technology.

**3.4 Sampling Size and sampling technique**

The sampling size of the study is 200 students from Baze University, Abuja. The sampling size is determined based on the research question and objectives, and it is essential to ensure that the sample size is sufficient to provide accurate and reliable results.

According to Creswell (2019), the sample size should be large enough to provide adequate statistical power and to reduce the risk of bias. In this study, the sample size of 200 participants is considered sufficient to achieve the research objectives and to provide reliable results.

The sampling technique used in the study is purposive sampling. Purposive sampling is a non-probability sampling technique that involves selecting participants based on their expertise, experience, or other relevant criteria. The researcher selects participants who are likely to have the most relevant information and experiences related to the research question.

According to Patton (2021), purposive sampling is useful when the population of interest is difficult to define or when the researcher needs to gather in-depth information from a small number of participants. In this study, purposive sampling is appropriate because the researcher wants to gather detailed information about the impact of the internet on undergraduate students' research.

**3.5 Method of Data Analysis**

For the purpose of this research work, data collected will be analysis using SPSS 20 method. With this technique, the researcher established a result of findings.

**3.6 Instrument/Method of Data Collection**

a) Surveys: A survey questionnaire would be administered to collect quantitative data from a large sample of undergraduate students. The survey would include questions related to challenges faced, teaching methods, engagement levels, prior experience, and suggestions for improvement.

b) Interviews: In-depth interviews would be conducted with a smaller sample of students and instructors to gather qualitative data. These interviews would provide insights into individual experiences, perceptions, and recommendations.

c) Classroom Observations: Classroom observations would be conducted to assess teaching methods, student engagement levels, and classroom dynamics.

**3.7 Validity and Reliability of the Instrument**

The validity and reliability of an instrument are crucial aspects of research, particularly in the field of customer service satisfaction analysis within a hospital information system using emerging technology. Validity refers to the extent to which an instrument measures what it is intended to measure, while reliability pertains to the consistency and stability of the instrument’s measurements over time. In the context of the “Customer Service Satisfaction Analysis on Hospital Information System Using Emerging Technology in Baze University Hospital,” ensuring the validity and reliability of the instrument is essential for obtaining accurate and meaningful results.

Validity encompasses several types, including content validity, criterion-related validity, and construct validity. Content validity ensures that the instrument comprehensively covers all relevant aspects of customer service satisfaction within a hospital information system using emerging technology. Criterion-related validity assesses how well the instrument correlates with external criteria, such as other established measures of customer satisfaction. Construct validity examines whether the instrument accurately captures the underlying theoretical constructs related to customer service satisfaction in the specified context.

Reliability, on the other hand, refers to the consistency and stability of the instrument’s measurements. It involves assessing whether the instrument produces consistent results when administered repeatedly under similar conditions. Common measures of reliability include test-retest reliability, which evaluates consistency over time, and internal consistency reliability, which examines the coherence of different items within the instrument.

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