Antecedents of Service Quality in Public Hospitals in South-South Geo-Political Zone of Nigeria

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Abstract

This study focused on antecedents of service quality in public hospitals in South-South Geo-Political Zone of Nigeria. It specific objectives were to determine the influence of physical facilities, waiting time, patients appointment schedule, patient interactions, hospital employees competency, and physical design which were proxies of antecedents on service quality towards patients satisfaction. It was a field survey type of research. Due to large population and inability to obtain population of patients in some hospital in South-South Geo-Political zone, Cochran estimation formular was used to achieve sample size of 384. Convenience and purposive sampling techniques were used in selecting the sample size. The main instruments were observation and questionnaire administration prepared in 5 point-likert scale form, while the statistical tool was least square regression. Data collected was estimated using statistical package for social sciences (SPSS version 21). The findings showed that physical facilities, waiting time, patients' appointment schedule, hospital employees competency have significant influence on enhancement of service quality, which by implications were critical antecedents of service quality. While, patient interactions and physical design have no significant influence on service quality, indicating that they are weak antecedents of service quality towards patients' satisfaction. The study hence concluded that antecedents of service quality could enhance patients' satisfaction in public hospitals in South-South Geo-political zone of Nigeria. This study therefore recommended that management of hospitals should critically looked at issues of sophisticated modern physical hospital facilities. reduction of waiting time, keeping to patients appointment schedule on the basis of first come first serve, employment of qualified competent physicians and supporting staff in the hospital

1 Introduction

Service quality is an important issue in any business organization whether public or private owned settings. Service quality is concerned with the provision of best services to customers in order to have sustainable competitive advantages (Nushrat, 2019). Schempf and Kaufman (2011) noted that the demand for quality hospital services by patients is on the increase as they (patients) desire better services. Since patients are becoming more open to competitive advances and more familiar with hospital services, service quality may be necessary to ensure a long-term relationship between the patients and the hospital (Gaur &Agrawal, 2006). Hospitals that fail to understand the importance of delivering service quality and patients' satisfaction may be inviting a possible loss of patients (Padma, Rajendran & Lokachari, 2010). Service quality is an increasingly important factor for organizational performance, success, and survival as health sector (Akhtar, 2011).

Nigeria as a nation operates a pluralistic healthcare delivery system (orthodox and traditional healthcare delivery systems). Orthodox healthcare services are provided by private and public sectors. The provision of healthcare in the country remains the functions of the three tiers of government: the federal, state, and local government. The primary healthcare system is managed by the 774 local government areas (LGAs) which is the primary health care with support from their respective state ministries of health as well as private medical practitioners. The secondary healthcare system is managed by the ministry of health at the state level which is seen today as general hospital. The tertiary primary healthcare is provided by federal level which is known as teaching hospitals. As affirmed by Obansa andOrimisan (2013), with the country's teeming population now estimated at over 150million, it is still struggling with the provision of basic health services.

Improving the quality of medical care services has become a primary concern for patients, and in order to provide better services to patients (Arasli, Mehtap-Smadi & Katircioglu, 2008). According to Health Reform Foundation of Nigeria-HERFON (2006), health facilities (health centers, personnel, and medical equipment) are inadequate in the country, particularly in rural areas. This of course clearly explains the high mortality rate in children, maternal and even adults over the years. Nearly fifteen (15) percent of Nigerian children do not survive to their fifth birthday. Obansa and Orimisan (2013) identified the following among others as the factors affecting the overall performance of the Nigerian healthcare system: inadequate health facilities/structure; shortage of essential drugs and supplies; inadequate supervision of the healthcare system; poor human resources, management,

remuneration and motivation; lack of fair and sustainable health care financing with very low per capita health spending; unequal economic and political relations; the neo-liberal economic policies of the Nigerian state and corruption; high out-of-pocket expenditure in health by citizens, and absence of community-based integrated system for disease prevention, surveillance and treatment, Kirsten (2011), timely access to health care is an enormous challenger for health care system and it is an issue after-hours, nights and weekends. Brian (2002) stated that poorly organized service, shortage of health care workers, physicians not working in teams and inadequate health facilities can greatly cause or lead to long time waiting in public hospitals could affect service. Obinna (2013) once stated that health care environment is becoming a place of death as a result of lack of available physical facilities such as number of beds, and other fundamental equipment.

However, studies have not really looked at antecedents of service qualities in Nigeria by specifically examining influence of physical facility, waiting time, patients appointment schedule, patient interactions, physical design and hospital employees and competency in relation with service quality. There lies a gap in this regards which this study desires to fill. In summary: part 1 of this study focuses on the introduction; part 2 is concerned with literature review; part 3 is about methodology employed; part 4 critically analysed results and discussions of findings; while, part 5 focuses on conclusion and recommendations.

2 Literature Review
Concepts of Service Quality
Different definitions of service quality were put forward by academic researchers and practices. These definitions channel towards the same direction irrespective of the industry or sector for years. Parasuraman, Zeithaml and Berry. (1988) defined service quality as the differences that exist between customer perceptions about a service and expectations about the service as well. Service quality is defined as the degree of discrepancy between customers' normative expectations for service and their perceptions of the performance of the service (Parasuraman, Zeithaml & Berry, 1994). Santos (2003) viewed service quality as the customers' general decision of the excellence of service offering. Service quality is affected by the capability of a business organization to satisfy the needs of customers' in accordance with level of their expectations (Yoo & Park, 2007). Mauri, Minazzi and Muccio (2013) define service quality as a multi-dimensional concept, assessed and perceived by consumers, according to asset of essential parts. Saghier, and Nathan (2013) stated that service quality is an important concept in the service industry. Rauch., Collins., Nale and Barr (2015) noted that service quality has to do with conduct of comprehensive evaluation of an organization such that management has to compare its performance with its customers' expectations and with the performance of other organization in the same line of business or industry.

Service quality and patients' satisfaction are critical success factors for hospitals that are thinking about competitiveness, development and growth in the healthcare industry (Rauch., Collins., Nale., & Barr, 2015). Service quality can be understood as a comprehensive customer evaluation of a particular service and the extent to which it meets their expectations and provides satisfaction (Al-Jazzazi & Sultan, 2017). Service quality is briefly defined as how companies meet or exceed customer expectations. Service quality improves customer satisfaction and cost management increases profit (Yarimoglu, 2014). Service quality and overall satisfaction implicitly include issues such as price perception, which is usually only felt rather than objectively measurable (Sharma, 2017). Gajendra and Li (2013) noted that service quality is aimed towards satisfaction.

Furthermore, there are numerous definitions and measures of service quality, but there is no consensus on a single definition. Quality of service has been defined as an overall evaluation done by the customer service (Eshghi, et al., 2008), while other researchers have defined the customer service as the extent to which services meet customers' needs or expectations. It is also seen as overall evaluation of a specific service firm that results from comparing that firm's performance with the customer's general expectations of how companies in that industry are expected to perform (Chidambaram & Ramachandvan, 2012).

Measuring service quality to identify the difference between perceived and expected service is a valid way and enable the management to find gaps to what they offer as services. Organizations are now more focused on quality services and the aim is to satisfy customers. Due to the critical quality of service to business, it is difficult for service providers to measure the quality of services (Nushrat, 2019). The difficulty of measuring the service quality stems from its intangibility, diversity, and the difficulty of separation (Saghier & Nathan, 2013). However,

Antecedents
Antecedents referred to pasts, backgrounds and forerunners of any issue or issues. In this study, the antecedents in relation to service quality in healthcare or hospital include physical facilities, waiting time, patient appointment schedule, patient interactions, physical design and hospital employees competency. These antecedents are interacted with service quality in healthcare or hospital as below:
  (1) **Physical Facilities:** Physical facilities as far hospital is concerned entails equipment, like hospital beds, laboratory equipment and materials and others (Bitner, 1990).Parasuraman, et al. (1994) identified physical facilities as those tangibles like equipment and communications materials). It is the physical

image of the service that customers will use to assess quality.Cooke (2005) reviewed the literature regarding bed management and noted that hospital beds availability promote service quality. Tangibles are associated with the physical facilities, tools, and machines used in order to provide the service, as well as representations of the services, such as statements, speed and efficiency of transactions. Sharmin et al. [2016] considered tangibles as a distinct element, showing consistency across cultures. Jones and Lockwood (2002) have argued for that paying special attention on physical facilities in hospital setting can increase the likelihood of meeting customers' expectation. Agarwal and Kumar, (2016) and Fikry (2011) found that physical facility elements play a more significant role in overall customer satisfaction which are seen as issues that enhances service quality. The study hypothesized that; $H0_1$: *physical facilities has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

(2) **Waiting Time:** Waiting time refers to time. Kembe, Onah, and Iorkegh (2012) study on the effect of queuing in relation to the time spent by patients to access clinical services is increasingly becoming a major source of concern to most health–care providers". This is because keeping patients waiting too long could result to cost to them (waiting cost). In most healthcare settings, unless an appointment system is in place, the queue discipline is either first-in-first-out or a set of patient classes that have different priorities (as in an emergency department, which treats patients with life-threatening injuries before others. Yarimoglu (2014) waiting time to receive service is not expected to be extensive, but convenient hours of operation and the service facility is in a convenient location. Waiting time at different hospitals can vary widely, depending on the number of patients seen, emergency department efficiency, admission procedures or the availability of inpatients beds (Andy 2013). Consequently, Ogunfowokan and Mora (2012) noted that long patients clinic encounter time was accounted for mainly by the waiting time to see a doctor Long waiting time has been given as a reason why some patients do not have their prescriptions filled in a particular hospital. This shows the significance of waiting time on hospital services and patronage. Excessive patient waiting time undermines health care services efficiency. Such delay leads to patient dissatisfaction and thus may eventually result in loss of patronage in a competitive health care system. It can also lead to poor patient compliance with instructions given at the pharmacy" (Afolabi & Abdulahi, 2005). The study hypothesized that; $H0_2$: *waiting time has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

(3) **Patients Appointment Schedule:** The term "appointment" refers to the period of time allocated in the schedule to a particular patient's visit; and "service time" refers to the amount of time the physician actually spends with the patient (which may be shorter or longer than the appointment duration (White, Froehle, & Klassen, 2011). Based on Cayirli and Veral (2003), appointment schedule can be classified as static or dynamic. In static, all decisions must be made prior to the beginning of a clinic session, which is the most common appointment system in health care. For dynamic, the schedule of future arrivals are revised continuously over the course of the day based on the current state of the system. This is applicable when patient arrivals to the service area can be regulated dynamically, which generally involves patients already admitted to a hospital or clinic. Patients are assigned unique appointment times that are spaced throughout the clinical session. Mardiah and Basri (2013) showed that appointment scheduling can enhance service quality towards patients attendance in the hospital. It is hypothesized that; $H0_3$: *patient appointment schedule has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria.*

(4) **Patient Interactions:** Proper interaction with patients by employees of hospital cannot be taken for granted. Telling patients exactly when things will be done, giving them undivided attention, promoting services, and responding in accordance with their requests are crucial in ensuring service quality (Parasuraman, et al., 1985). This relates the willingness of the hospital management or employees whether to help customers and provide prompt service especially in keeping customers informed as to when services will be performed and readiness to respond to customers request. is defined as "the willingness to help customers and provide prompt service"(Parasuraman, et al., 1988). Blery et al., (2009) stated that it is the level of knowledge and courtesy of employees for providing services and to build confidence in patients who are customers of hospital. Staff of hospital (like doctors, nurses, midwives and supporting staff) are expected to possess the required skill and knowledge of interacting with patients in the hospital. Employees of hospital are expected to interact and exercise willingness or readiness to assist patients during provision of services. It is believed that if employees of hospitals perform services without fumbling around, and display trustworthy behavior such that the satisfaction level of customers can be enhanced significantly (Agagbu &Mcwabe, 2013). Patients perception of functional issues which they perceive and interact with during the course of seeking treatment such as internal process; interactions with doctors, nurses and other supporting staff can enhance service quality in the hospital (Boshoff & Gray, 2004; Algılanan, Hizmet & Connor, 2003). The empathetic attitude in course of interaction with

customer or patients as in case of hospital incites a sense of importance in the customer and hence, leads to retention behaviour and positive word of mouth can be linked with service quality (Alghamdi, 2014). Demirel, Yoldas and Divanoglu (2009) found a positive and significant relationship between customers interactions' on service quality. It is hypothesized that; H0$_4$: *patient interaction has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria.*

(5) **Physical Design:** The structural environment greatly affects patient's flow which in turn affects quality, and efficiency of healthcare delivering in outpatient settings (AIA, 2004). Visiting the hospital entails moving from one location to the other, this migration is as a result of the departmentalization of independent services provided to patients. It was further highlighted in the works of Tzortzopoulous (2009) when she mentioned that patients flow can be directly enhanced through building configuration. Hospital environment with poor structural design in no doubt will create patients flow problem making other available resources absolutely ineffective and inefficient. It is hypothesized that; H0$_5$: *Physical design has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria.*

(6) **Hospital Employees Competency:** Hospital employees consist of line staff made up of physicians (doctors, nurses, midwives, pharmacists, laboratory attendants etc) and auxiliary or supporting staff (Brown & Duguid, 2003).Haddad [2017] states that competences include knowledge, skills, abilities, values, motivation, initiative, and self-control. Human competency is one of the most common areas involved in the management of people at work (Omotayo, Salau, & Falola, 2014). Hospital employees' competency explains the readiness of hospital employees in handling patients. In this regard, qualified employees are expected in the hospital in order to enhance service quality. An optimal service is the result of several integrated factors related to individual service, employee competences and organizational strategies that suit appropriate skills. It is very difficult to enjoy life without productive work, and any activity that has so much importance must evoke strong and positive or negative reactions and these reactions tell how satisfied or dissatisfied one is with one's work. Pakurar, Haddad, Nagy, Popp and Olah (2019) showed that employee competences has influence on service quality towards customer satisfaction. It is hypothesized that; H0$_6$: *Hospital employee competency has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria.*

Theoretical Framework
The below theories are used to explain antecedents of service quality in hospital.
(1)**Healthcare Quality Theory:** The healthcare quality theory is initiated by Donabedian in 1980(Donabedian, 1980). The idea behind the theory was that satisfaction was the principal outcome of the interpersonal process of care. Donabedian, (1980) argued that the expression of satisfaction or dissatisfaction is the patient's judgment on the quality of care in all its aspects, but particularly in relation to the interpersonal component of care. Tjiptono and Chandra (2016) stated that the service quality is the expected benefits and control over the level of excellence to meet customer desires. Thus the service quality of health care is an effort to fulfill the needs and desires of the patients as well as the accuracy of delivery according to patient expectations. The new generation of healthcare consumers, such as patients, family of patients and potential patients, demand improved quality of service, increased satisfaction, medical error reduction, and prevention of diseases (Lee, Lee &Yoo 2012). Ramez (2012) indicated that patient perception of healthcare quality has a strong and positive relationship with patient satisfaction. In this regards, antecedents like facilities, employee competency, waiting time can play important role towards patient satisfaction and service quality.

(2)**Queuing Theory:** . Queuing theory was originated by "Agner Krarup Erlang" who worked in "Copenhagen Telephone Company " (CTC) from 1908 (published a paper now called queuing theory in 1909) (Pollaczek, 1930; Sundarapandian, 2009). Queuing theory is used when making business decisions about the resources needed to render a service. Queuing theory deals with one of the most unpleasant experiences of life like waiting and taking turn in orderly manner. Queuing theory is defined as "a mathematical study of waiting lines, and a model is constructed so that queue lengths and waiting time can be predicted (Sundarapandian, 2009). Mandia (2008) identified three types of queues and these include: First In First Out- which states that customers are served one at a time and that the customer or patients that has been waiting the longest is served first; Last In First Out – which also states that serve customers one at a time, but the customer with the shortest will be served first and, the processor sharing discipline serves all the items in the queue equally (Harchol-Balter, 2012).

Queueing theory has been applied to a variety of business situations like Telecommunication" traffic engineering, computing and the design of factories, shops, offices, banks and hospitals (Schlechter, 2009; Vasumathi & Dhanavanthan, 2010). Nevertheless, patients in hospital require or is expected to provide service facility capable enough to reduce costs and time while providing the required service to patients according as the queue moves on. Chowdury (2013) noted that application of the theory provides faster customer services, improves traffic flows, aids in decongestion, helps in optimum scheduling of appointments, enhances quality service delivery,

fosters customer satisfaction and effects an efficient design of systems and procedures. Chowdury (2013) posited that queuing theory provides models that are capable of determining arrival pattern of customers or most appropriate number of service stations. Queuing theory provides better understanding of waiting lines so as to develop adequate service with tolerable waiting as case of health care. Having examined the two theories, we anchored it on healthcare theory.

3 Methodology
Research Design
This study employed field survey of public hospitals in South-South Geo-Political zone. A total of six states (Akwa Ibom, Bayelsa, Cross River, Delta, Edo and Rivers) formed the South-South Geo-Political zone. The choice of public hospitals in the Geo-Political zone for the period of five months (January to May) 2020 were due to magnitude of patients flow on daily basis for different treatment or medical care. The total population of patients so large in the various public hospital (infinite in the sense actual population is unknown), hence Cochran 1977 sample estimation was applied to achieve 384 patients shared on equal proportion of 64 per state. The sample patients made up of women in Antenatal and patients in accident and emergency wards. Convenience and purposive sampling techniques were used in selecting the sample size. The instrument applied were observation and questionnaire administration prepared using 5-point likert scale. The reliability test indicated Cronbach-Alpha test result of 0.8936, 0.7652, 0.9173, 0.6258, 0.8942, 0.7046 and 0.6538 for questionnaires relating to service quality, physical facilities, waiting time, patients appointment schedule, patients interaction, physical design and hospital employees competency respectively.

Method of Analysis
Data collected was analysed using Pearson correlation as diagnostic check if there is problem of multicollinearity in collated questionnaire data analysed and least square method for the purpose of testing hypotheses formulated..

Model Specification and Operationalisation of Variables
The model specification for this study is adapted from the works of Alghamdi (2014) and, Amjeriya, and Malviya (2012). The model for this study is specified in implicit and explicit form below:

$PS=f(PF, WT, PAS, PI, PD, HEC)$……………………………………………………1
$PS=X_0 + X_1 PF + X_2 WT + X_3 PAS\ X_4 PI + X_5 PD + X_6 HEC + e$………………………2

Where:
SQ=Service quality
X_0=Constant
$X_1 + X_6$ = Intercepts
PF=Physical facility
WT=Waiting time
PAS=Patient appointment schedule
PI=Patient interactions.
PD=Physical design
HEC=Hospital employee competency
e=error term

apriori expectation: The apriori expectation is specified as X_1 to $X_6 > 0$ such that an increase in any of the variables will bring about an increase in service quality.

4 Analyses of Results and Discussion
The results are of data estimated are analysed, interpreted and discussed as follow.
Table 1: Pearson Correlation

Variables	SQ	PF	WT	PAS	PI	PD	HE
SQ	1						
PF	.097	1					
WT	.204*	.006	1				
PAS	.373**	.509**	.666**	1			
PI	.262**	-.160	.076	-.137	1		
PD	.115	.011	.009	.009	.081	1	
HE	.190*	-.002	-.034	.091	.518**	.710**	1

Source: Researcher

Table 1 shows associations based on estimated data among variables. When the dependent variable which is service quality is at unit value (SQ, r=1), independent variables otherwise referred to as antecedents stood as

follows: physical facilities (PF, r=0.097); waiting time (WT, r=0.373**); patient appointment schedule (PAS, r=0.037) patient interaction (PI, r= -0.204*); physical design (PD, r= 0.262); hospital employee (HE, r= 0.115) respectively were positively related. When other independent variables are at perfect unit respectively, they are either positively or negatively correlated. However, none of the independent variables or antecedents is above 0.90 as suggested by

Table 2: Dependent variable: Service Quality

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1808	0.2313	0.7813	0.4352
PF	0.1257	0.0235	5.3382	0.0000
WT	0.1677	0.0599	2.7973	0.0054
PAS	0.1046	0.0402	2.6033	0.0096
PI	-0.1003	0.0882	2.0819	0.0381
PD	0.1156	0.0698	1.6574	0.0984
HEC	0.1007	0.0426	2.3621	0.0187
R-squared (R^2)			0.6314	
Adjusted R-Squared (R^2) −			0.6217	
F-statistic	(PV)		65.278	0.0000

Source: Researcher's Compilation (2002)

Table 2 revealed coefficient of determination (R^2) value of 0.6314, indicated that the antecedents or independent variables (physical facility (PF), waiting time (WT), patient appointment schedule (PAS), patient interactions (PI), physical design (PD) and hospital employee competency (HEC)) explained about 63% of the variation in service quality. Adjusted coefficient of determination (R^2) which is at value of 0.6217, showed that about 62% of the variations were accounted for, while the remaining 38% were unaccounted, hence captured by stochastic disturbance. The F-statistic of 65.2781which is significant at $p<0.05$, means that there is a statistical significant relationship with antecedents and service quality.

Test of Hypotheses and Discussion

The decision rule in testing the hypotheses formulated is to accept hypothesis formulated if the calculated t-statistic probability value (pv) is greater than the critical pv at 0.05 (5%) significance level, otherwise, we reject it. The hypotheses are tested and subsequently discussed respectively.

Hypothesis 1: *Physical facilities has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

Physical facilities (PF) with t-statistic value of 5.338 and at probability value of 0.000 in Table 2, is less than critical probability value of 0.05 significance level with 95% confidence. The result showed that physical facility was statistically significant, meaning that we can reject the hypothesis. This implied that physical facility as a proxy for antecedent has significant influence on service quality. Physical facility which stood at coefficient value of 0.1257 with service quality in Table 2, indicated that a unit increase in physical facility could bring about increase in service quality. The finding corroborated with Nguyen and Nguyen (2012) who showed that physical facilities like medical equipment can enhance service quality and patients' satisfaction in the hospital.

Hypothesis 2: *Waiting Time has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

Waiting time (WT) with t-statistic value of 2.798 and at probability value of 0.000 in Table 2, was less than critical probability value of 0.05 significance level with 95% confidence. The result showed that waiting time was statistically significant, as such we can reject the hypothesis. This suggested that waiting time as a proxy for antecedent has significant influence on service quality. Waiting time which stood at coefficient value of 0.1677 with service quality in Table 2, indicated that a unit increase in waiting time could bring about increase in service quality. The finding is in tandem with Ibrahim, etal., (2015) who indicated that reduction in queuing or waiting time to receive treatments in the private more and public hospital can influence service quality.

Hypothesis 3: *Patient Appointment Schedule has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

Patient appointment schedule with t-statistic value of 2.603 and at probability value of 0.000 in Table 2, was less than critical probability value at 0.05 significance level with 95% confidence. The result indicated that patient appointment schedule was statistically significant, hence we can reject the hypothesis. This suggested that patient appointment schedule as a proxy for antecedent has significant influence on service quality. Patient appointment schedule which stood at coefficient value of 0.1046 with service quality in Table 3, indicated that a unit increase in patient appointment schedule could bring about increase in service quality. The finding is in consistency with Mardiah and Basri (2013) who showed that appointment scheduling can enhance service quality which can as well give patients satisfaction as result of attendance in hospital.

Hypothesis 4: *Patient Interactions has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

Patient interactions (PI) with t-statistic value of 1.082 at probability value greater than critical probability value of 0.05 (5%) significance level with 95% confidence. The result showed that patient interaction was statistically insignificant, as such we can reject the hypothesis. This suggested that patient interaction as a proxy for antecedent has significant influence on service quality. Patient interaction which stood at coefficient value of 0.1003 with service quality in Table 2, indicated that a unit increase in patient interaction could bring about increase in service quality. The finding concurred with The empathetic attitude in course of interaction towards the customer or patients as in case of hospital incites a sense of importance in the customer and hence, leads to retention behaviour and positive word of mouth which can hae a link with service quality (Alghamdi, 2014). Demirel, Yoldas and Divanoglu (2009) found a positive and significant relationship between customers' perception of service quality and their willingness to recommend the organisation.

Hypothesis 5: *Physical Design has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

Physical design in Table 2 which indicated t-value of 1.657at probability value of 0.3157 was less than critical probability value at 0.05 significance level with 95% confidence. The result showed that physical design was statistically insignificant, as such we can reject the hypothesis. This suggested that waiting time as a proxy for antecedent has significant influence on service quality. Physical design which stood at coefficient value of 0.1156 with service quality in Table 2, indicated that a unit increase in physical design could bring about increase in service quality. The finding is in line with Nguyen and Nguyen (2012) examined service quality and its impact on patients' satisfaction. The study employed combination of quantitative and qualitative methods and analysed using multiple regressions. The findings showed that tangibility (facilities, medical equipment and hospital environment), accessibility to health care services, attitudes and medical ethics were found to have significant positive effects on patients' satisfaction.

Hypothesis 6: *Hospital Employees has no significant influence on service quality in public hospitals in South-South Geo-political zone in Nigeria*

Hospital employee competency (HEC) in Table 2 which indicated t-value of 2.362 at probability value of 0.3157 was less than critical probability value at 0.05 significance level with 95% confidence. The result showed that physical design was statistically insignificant, as such we can reject the hypothesis. This suggested that waiting time as a proxy for antecedent has significant influence on service quality. Hospital employees' competency having coefficient value of 0.6314 with service quality, suggested that a unit increase in hospital employee competency could bring about increase in service quality. The finding is in support of Akahome (2017) who revealed that staff of public hospitals if properly remunerated, trained can influence service quality delivery which could as well enhance customer satisfaction.

5 Conclusion and Recommendations

The issue of service quality has been concern of patients who seek attention in the hospital. This is because patients desire quality service in order to be satisfied. This is why the health sector plays an important role in the life of every individual because everyone is a potential patient. Proper understanding of patients' evaluation of hospital service quality performance will improve the existing hospital system outcome and enhance service quality. Healthcare quality and queueing theories have showed importance of quality service as patients take turns accordingly in the hospitals. The study revealed that physical facilities, patient waiting time, patient scheduling and hospital employee competency were significant implying that they are critical antecedents of service quality, while patients interactions with hospital employees and physical design of hospital statistically insignificant suggesting to be weak antecedents of service quality in hospital in South-South Geo-political zone of Nigeria.

The study therefore recommended as follows:

(1) Government should equip public hospitals with adequate beds, ventilators, human scanning and radiological facilities, and other medical equipment for the interest of patients in the zone.

(2) Hospital management should ensure that patient waiting time in the hospital is reduced to minimum time frame.

(3) Hospital management should ensure that patients on appointment are attended to according to schedule. Employees in charge of patients appointment should ensure that requirements to ease patient appointment are well taken care of in order to avoid unnecessary patient delay in hospital.

(4) Hospital physical design should be well structured out by management pointing or showing various directions to different wards and units in the hospital. Public hospitals should be in environment that it can easily be accessed by patients.

(5) Hospital employees attending to patients should ensure that patient are well interacted or communicated with in a friendly, polite and build confidence that can enable patients have trust in services rendered in the hospital.

(6) Public hospitals should employee qualified physicians in different specialists. Physicians and supporting employees in some sensitive areas should be sent on training and development from time to time.

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