

Assessment on health care service quality and patients' satisfaction in Ghana

Patients'
satisfaction in
Ghana

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Abstract

Purpose – With the exigencies of health-care service quality to actualize sustainable socio-economic and developmental aspirations, in both peripheral and core countries, this paper aims to provide empirical evidence on health-care service quality and its precursor – patients' satisfaction, and continuous service utilization.

Design/methodology/approach – A total of 398 screened questionnaires were analyzed from selected hospitals of the Koforidua, Ghana. Findings from the structural equation modeling showed a significant association among perceived quality, patients' satisfaction and tangibility. Contrary to the expectations, the results did not show a significant association among the constructs – perceived quality, safety and empathy. Again, the model fit indices collaboratively showed that the hypothesized model overwhelmingly "fit" the sample data, and further proved the predictive robustness of the model.

Findings – The results of the analysis demonstrate that patients were discontent with empathy and safety measures at the hospitals. However, tangible and perceived quality were identified as significant predictors of patients' satisfaction.

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Originality/value – There is a dearth of empirical investigations on the assessment of health-care service quality and patients' satisfaction in developing economies such as Ghana. Therefore, the implication of the study will equip the top hierarchy of the Health System of Ghana in achieving their mission, and objectives in line with quality service delivery. In particular, MoH and GHS can embark on a routine exercise to audit the hospitals for re-accreditation, and provide CCT cameras to improve safety and security conditions at the hospitals, while enforcing the culture of receptive hospital environment to improve empathy.

Keywords Service quality, Healthcare, Structural equation modelling, Patients' satisfaction, Healthcare service quality, Health economy, Health ecosystem

Paper type Research paper

1. Introduction

Attainment of good health statistics has become a major concern at both country and international levels. Seminal developmental goals such as Millennium Development Goals (MDGs), Sustainable Development Goal (SDGs) and Vision 2020, among others, adopted by world leaders, are all characterized and laden with health goals (Maret, 2011; Haines and Cassels, 2004). For example, MDG4, 5, and 6 are crystal clear on reduction of child mortality, improvement in maternal health, and a “war” against HIV/AIDS, Malaria (and other maladies) respectively. Good health undoubtedly is the “by-product” of clean and friendly environment, and thus, SDG7 accentuates environmental sustainability (Taylor *et al.*, 2012; Attaran, 2005). Again, SDG3, stresses on healthy life and promotion of well-being for all ages (Hutton, 2017). Furthermore, the fundamental objective of Vision 2020, is “the right to sight” (WHO, 1999).

Economic growth models and theories highlight on the causal relationship between human capital and economic growth (Bloom and Canning, 2008). The quality of healthcare service is an indispensable determinant of economic growth and development. Productivity grows *pari passu* with a healthy population, partly due to increase in labour hours at workplace and savings (Bloom *et al.*, 2004). The causal effect of health expenditure on economic development is also explained by the health-led growth hypothesis – an investment in health leads to an upsurge in productivity. A healthy workforce is always poised with the incentive to develop new skills and knowledge, and the reverse also holds (World Bank, 2006).

“Being healthy encapsulates the total state of mental, physical, and social well-being, as measured by the absence of illnesses” (WHO, 2006). Against this framework, the attainment of a comprehensive health status has occupied a premium position on the scale of preference of architects of health policies of all ages.” Consequently, research that are linked to quality health-care delivery are critical and endeavor to elucidate the cogent forces that propel good and quality health-care delivery systems for its intrinsic value among the citizenry (Cole and Neumayer, 2006):

The results of the analyses of the direct relationship between health and growth in Mexico, from 1970-1995, using life expectancy and the mortality rates for different age groups as health indicators, showed that, health is the causal factor responsible for approximately one-third of the long-term economic growth in Mexico (David, 2001).

Again:

[...] countries with a 10% increase in public health expenditures as a proportion of GDP in developing or middle-income countries that have adequate institutions would be associated with a 7% decrease in the maternal mortality rate, a 0.69% decrease in child mortality rate, and a 4.14% decrease in low weight for children under five (World Bank, 2004).

Ill-health negatively affects an individual's propensity to save and its investment antecedents. It increases attendance at hospitals, and consequently, increase medical care bill of citizens. It also promotes absenteeism, and further erodes the level of productivity and

profitability in every economic unit of societies (Bloom and Canning, 2008). Furthermore, foreign investors constantly scan for congenial and serene locations which promise them their investment goals and returns. Thus, FDI inflows are affected negatively in jurisdictions with endemic maladies. Evidentially, 50 per cent, of the disparities between economic success of the core and peripheral countries are attributable to low life expectancy and poor health. “A product or a service possesses quality if it helps somebody and it enjoys a good and a sustainable market” (Deming, 1994). Thus, quality is linked to both the hedonic and utilitarian value of a product or a service as well as its marketability. The Institute of Medicine (IOM) (2001), defined health-care quality as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”.

Other researchers have acknowledged Deming’s incorporation of the function of marketing in quality service delivery. Thus, they have a synthesized definition of health-care service quality – as one that meets the perceived expectations of patients and other customers of health-care services (Buttelt and Hendler, 2007). Hence, in this paper, we defined quality health-care service as the degree to which health-care service of patients increase the likelihood of desired health outcomes, consistent with current professional knowledge and capable of meeting perceived expectations of health-care clients.

Health-care service in Ghana is mainly provided by the central government under the auspices of Ministry of Health (MoF), and Ghana Health Services (GHS). There is also private provision of medical care service to augment governmental provision (Canagarajah and Sudharshan, 2001; La-Verle, 1994). According to WHO’s report, Malaria and Measles are the leading causes of all fatalities and premature deaths in Ghana. Landmark reports underscore the fact that, 70 per cent, of cumulative deaths among children under-five years are attributed to malnutrition-led infections; and also, Ghana Health Service (GHS) reports indicate that malaria is the primary cause of morbidity in Ghana. Other leading causes of morbidity according to studies are neoplasm, cardiovascular, renal and genitourinary, digestive tract conditions, neuropsychiatric conditions, respiratory diseases, congenital anomalies, road traffic accidents, intentional injuries (suicide and homicide), pneumonia, sickle cell, meningitis and anemia (CIA, 2017; Hayes, 2017).

Ghana, aside its local socio-economic and developmental goals, remains committed to UN’s MDGs and SDGs, and other developmental conventions (WHO, 2015a, 2015b). Thus, health-care service quality is critical in the actualization of these pro-development goals:

The MDGs aim at eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality and empowering women, reducing child mortality, improving maternal health, combating HIV/AIDS, malaria (and other diseases), ensuring environmental sustainability, and developing global partnerships for development WHO (2015a, 2015b).

Ghana, since the year 2000, has made a concerted effort to achieving these stipulated goals, and thus, periodically measure its indicators. Tremendous achievements have been made in Ghana relative to *MDG 4* targets – a reduction of child mortality. WHO’s report (2014) indicates that under-five mortality rates (deaths per 1000, live births) have dropped by two-thirds from 1990 to 2015 – 1990(128); 2013(78); 2015(43) (WHO, 2015a, 2015b). However, there has not been a considerable achievement in Ghana as far as *MDG 5* (i.e. improvement in maternal health) is concern. Maternal mortality ratio (per 100,000, live births) is still on the high side; and thus, predictions were made that Ghana will miss her target of reducing maternal mortality by three-quarters from 1990 to 2015 (Cohen, 1996). The maternal mortality ratios of Ghana stood at 780, 398 and 190, per 100,000, live births in 1990, 2013 and 2015, respectively (WHO, 2017, 2016a, 2016b). *MDG 6*, is explicit on combating HIV/AIDS,

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Malaria, and other maladies. The prevalence rate of HIV/AIDS among people within the age bracket 15 and 49, fell markedly from 2.30 per cent (2001) to 2.00 per cent (2005), but later increased to 1.30 per cent in 2013 (WHO, 2017).

These reductions were, however, projected by analyst and researchers as not significant enough to achieve the country's target to halt and reverse the spread of HIV/AIDS in 2015. The estimated number of deaths caused by Malaria in 2010, and 2012, were given as 1,437, and 1,500, respectively (WHO, 2017, 2016a, 2016b). Thus, there is the need for further improvement in awareness creation and delivery of quality health-care service within the Ghanaian health-care ecosystem.

The health-care ecosystem is an embodiment of the entire institutions, organizations and resources that are responsible for attainment of certain health outcomes via health actions. "A health action is any effort, whether in personal healthcare, public health services or through intersectoral initiatives, whose primary objective is to improve health" (WHO, 2016a, 2016b). The health ecosystem is governed principally by two objectives, namely, the best attainable average level (i.e. responding to the expectation of patients) and the least feasible differences among patients (i.e. provision of service devoid of partiality). According to WHO, every health ecosystem has six unique features, namely, service delivery, medical workers, information, medical products, financial resources and governance structure. In line with WHO's module of health ecosystem, Africa has extended and customized nine key features of the health ecosystem; and accordingly, made a declaration on primary health care and health systems with emphasis on quality health-care service delivery, health financing, health information systems, health technologies, partnerships for health development and research on health, among others (WHO, 2016a, 2016b).

Health-care service quality is critical in fostering a long-lasting bond between patients and health-care service providers; and an indispensable metric to measure this construct is through patients' feedbacks and sentiments. Health-care service quality anchors on patients' satisfaction (Mehmet *et al.*, 2019; Shalini and Masood, 2018; Ajwinder *et al.*, 2018), and ultimately, it engenders patients' service utilization and loyalty (Wanjau *et al.*, 2012; Dana and Roberta, 2015; Sweta *et al.*, 2019; Peter, 2019). Strict adherence to health-care principles and treatment protocols positively correlate with patients' perceived service quality (Ajwinder *et al.*, 2018; Mehmet *et al.*, 2019). Again, clients' feedback, experience, and sentiments monumentally shape future service quality outcomes, customers' quality perceptions, and continuous patronage of services and products (Choi *et al.*, 2008; Edvardsson, 2005). According to Pine and Gilmore (2011), "Experiences are commercial offerings that engage customers in memorable ways – are distinct form of economic output, and as such hold the key to promoting future economic prosperity". Experiences of customers about products or services affect their future behavioral intentions (Eran, 2018). Following Pine and Gilmore (2011), Eran (2018), Anatoly and Alexander (2016) Richard and Sriram (2014) and Abbie-Gayle and Neuhofer (2017), we advance that patients' authentic experience at hospitals shape their impression about the quality of medical service offering.

One paramount feature of every health ecosystem is service quality (SERQUAL) delivery (WHO, 2016a, 2016b). SERQUAL, through influential research is believed to be the cornerstone of customer satisfaction, and its antecedents – loyalty and continuous service utilization. It moderates the pre-purchase and post-purchase intentions of customers (Parasuraman *et al.*, 1985; Demirel *et al.*, 2009). There are plausible explanatory and confirmatory evidence of the overarching role of SERQUAL in determining customers' satisfaction and loyalty among some Ghanaian service sectors; including the health sector, albeit very few and dearth (Nketiah-Amponsa, 2009; Doku *et al.*, 2018; Ayimbillag *et al.*, 2011).

To the best of our knowledge, existing studies on service quality in the domain of Ghanaian healthcare service and other developing economies adopted the SERQUAL model (Ayimbillag *et al.*, 2011; Direktor and Yesilada, 2010; Mohammed, 2005; Bahrami *et al.*, 2012; Yamoah and Adom, 2014) and other related health-care service quality dimensions (Shelton, 2002; Myers, 1969; Koehler *et al.*, 1994; Mcneil *et al.*, 2000) and thus, inherited the attendant and embedded drawbacks of the SERQUAL model. The SERQUAL model, even though, presents a generic picture of service quality, in reality, it does not have a complete fit-for-all-services attribute owing to the peculiarities of certain services such as health. Again, there is an element of knowledge gap in existing literature. First, the moderating role of perceived quality (PEQ) between patients' satisfaction (PSTAT) and the constructs – empathy, safety and tangible (EST) in assessing patients' satisfaction, and health-care service quality has not been empirically examined in extant literature. Second, a chunk of the existing material on patients' satisfaction and healthcare service quality assessments are chiefly anecdotal details, and depicts overreliance on basic methodologies; and consequently, lack reliability, accuracy, and forecasting robustness.

In the present study, we addressed this fundamental gap by demonstrating the EST-PEQ framework's direct and indirect effect on patients' satisfaction, and healthcare service quality with improved forecasting methodology – structural equation modeling (SEM).

The implication of the present study shall provide a wealth of knowledge on the governance component of the health ecosystem for future policy formulation and adoption at both departmental and executive levels in Ghana. Again, there are socio-cultural and economic commonalities among Ghana and most countries within the African enclave. Thus, the implications of the study will not be bound to Ghana – it shall further serve as a precursor, mine of reference material and policy guide to the entire African Union bloc, and other emerging economies on matters that border on health service quality outcomes.

The remainder of the paper is structured into Theoretical Background and Hypothesis Development (Section 2), Materials and Methods (Section 3), Results and Discussion (Section 4), Conclusion and Implication (Section 5), and Limitation/Future Research Direction (Section 6).

2. Theoretical background and hypotheses development

2.1 Service quality

Service quality within the health ecosystem has been defined differently by various individuals and institutions. However, each of these definitions is emphatic on the fundamental dimensions of every quality healthcare delivery system. In other words, each of these definitions is crystal clear on the unique features of every quality health-care delivery system.

WHO's health-care service quality definition focuses on optimal health, responsiveness, and fairness in medical expenses (Institute of Medicine, 2001; Evans *et al.*, 2001). According to Donabedian (1988), health-care service quality involves “the application of medical science and technology in a manner that maximizes its benefits to the health of the recipients without correspondingly, increasing the related risk.” Thus, the Donabedian Model on health-care service quality focuses on efficiency, effectiveness, efficacy, legitimacy, optimality, acceptability and equity as the necessary and sufficient factors for quality health-care delivery (Donabedian and Arbor, 1980). Sweeney *et al.* (2007) also in their seminal hierarchical model for health service quality, and service outcome – service satisfaction and behavioral intentions, established primary dimensions of health service quality (namely, environmental, administrative and technical support) and nine sub-dimensions – tangibility, relationship, support, interaction, operation, outcome, timeliness, atmosphere and expertise; and consequently, affirmed the SERQUAL-satisfaction dyad.

Some researchers confirmed the inclusion of accessibility and effectiveness elements in packaging health-care service so as to attain service quality for the actualization of perceived ends of patients. However, they also advocate for strict adherence to other two critical areas, namely, improvement of care quality and, continuity as key ingredients for quality health-care service (Myers, 1969).

There are five trimmed dimensions of the SERQUAL model, as core and fundamental to service quality (Parasuraman *et al.*, 1988a, 1988b), namely, responsiveness (prompt response of employee towards customers' requests and needs), tangibility (the physical facilities such as buildings, equipment, staff outfit and the general environment of the service provider) and empathy (employees' polite attitude, closeness and friendless towards customers). The rest are assurance (trust and confidence customers repose in the staff of service provider relative to their expertise, capabilities, and know-how); and reliability (the fulfillment of service to customers as promised by the service providers) (Berry *et al.*, 1985; Parasuraman *et al.*, 1988a, 1988b; Zeithaml *et al.*, 1985). Accordingly, the SERQUAL model has been adopted to study health-care service quality and patients' satisfaction in several jurisdictions (Wanjau *et al.*, 2012).

The SERQUAL model, however, was met with criticisms, and consequently, the service performance (SERVPERF) model was developed. The SERVPERF model (Cronin and Taylor, 1992) is a synthesis of the SERQUAL model, with key emphasize on the appropriateness to measuring service quality by capturing the perception and expectation components of quality performance from consumers (Cronin and Taylor, 1992). Thus, SERPERF focuses on quality of performance as crucial in satisfying customers' expectations, and future service utilization.

Furthermore, some studies posit that the sustainability of health-care service quality and its attendant customers' satisfaction are only achievable if health-care service providers pay critical attention to other quality dimensions such as improvement of care services, billing system, convenience of care service and communication (Shelton, 2002).

The unique nature of health-care service quality and, the failure of some proposed service quality dimensions to clearly measure health-care service quality and patients' satisfaction due to overgeneralization and model complexities motivated the proponent of the HEALTHQUAL model – which is also characterized by the five dimensions – tangibility, efficiency, safety, improvement of care service and empathy (Lee, 2016).

It can be inferred from the ongoing discussion that, the need to achieve service quality and the expected patients' satisfaction have being on top of the agenda in prior studies and accordingly, there are several proposed dimensions (e.g. SERQUAL, HEALTHQUAL and SERVPERF) to measure these important constructs. However, none of them has ever examined the moderating effect of perceived quality (PEQ) on patients' satisfaction and the factors – empathy, safety, tangibility (EST) as empirically examined in the present study.

2.2 Empathy

Empathy in a generic context of service quality refers to the attitude of a service provider towards a customer that reflects element of utmost care and emotions. Thus, in the health-care service environment, it may be defined as the ability of the health-care service provider to better understand and serve patients with utmost attention. Thus, empathy is a reflection of emotions and fellow-feelings while delivery care services. It encompasses polite attitude of hospital staff, their ability to listen, understand and give detailed information to patients, among others (Curry and Singlair, 2002) From the viewpoint of emotional quotient, Rafiei (2017) argued that health service providers with considerable levels of emotional quotient are expected to exhibit outstanding interpersonal skills that culminate into an excellent health service quality and patients' satisfaction. The converse also holds. Emotional

quotient has also been linked to improved job performance and organizational citizenship behaviors (OCBs) (Rafei, 2017).

Research shows that empathy correlates positively with patients' perceived service quality, satisfaction levels and future service utilization (Fottler *et al.*, 2002; Calnan *et al.*, 1994). Many studies on clients' satisfaction place more weight on empathy when considering customer loyalty and continuous service utilization (Cohen, 1996). Again, it has been observed in other studies that patients' satisfaction is enhanced whenever there is a flow of information relative to their treatment protocols and their state of health. And also, the main cause of patients' dissatisfaction has been identified empirically as communication gap (Abramowitz *et al.*, 1987). We, therefore, hypothesized that:

- H1. There is a significant association between empathy and patients' satisfaction.
- H2. There is a significant association between empathy and patients' perceived service quality.

2.3 Perceived service quality

Perceived service quality triggers and cements clients' satisfaction. It motivates pre-purchase (post-purchase) decisions and recommendations of clients. Empirical evidence shows that perceived service quality is an indispensable antecedent of satisfaction in different service arenas (Parasuraman *et al.*, 1988a, 1988b; Koehler *et al.*, 1994; Coye, 2001). Aaker (1991) contends that perceived quality is what informs clients to become brand apostles of service or product offering; and further, makes it possible for service providers to distinguish themselves in a highly competitive business environment which in turn set the tone for premium prices, and service expansion. Mitchell (1978) posits that a mechanism that threatens health-care service quality protocols at most health-care institutions is communication barrier. It is experienced at every aspect of the health-care service value chain. Several unfortunate health-care delivery outcomes have been associated with ineffective means of communication between patients and medical staff, or among medical staff (Mitchell, 1978). Furthermore, it has been demonstrated in another empirical study that perceived ease of use (PEOU), perceived advantage and perceived privacy risk are key antecedents of patients' behavioral intentions towards the adoption of Internet of Things (IoT) related health-care products (Adem *et al.*, 2017). In general, service quality is defined as ability of a delivered service (product) to meet clients' perceived expectations, needs and satisfaction. Zeithaml (1993) defined it as clients' overall impression of the relative superiority or otherwise of a delivered service or an establishment. Parasuraman *et al.* (1988a, 1988b) posit that perceived service quality is "the customers' perception of the overall quality or superiority of a product or service with respect to its intended purpose relative to alternatives". Thus, service quality entails the differences between clients' perceptions of delivered services and their expectation about entities delivery the services. By extension, patients mostly become satisfied and assume service providers to be competent whenever there is a perception of high level of service quality. Consequently, we hypothesized that:

- H3. There is a significant association between perceived service quality and healthcare service satisfaction.

2.4 Safety

Safety is considered as one of the most critical and crucial components of every health-care facility due to the fact that its neglect results in fatalities. Safety within the arena of health-

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care is defined as the delivery of health-care service which reduces the risks and harm to the recipient. It can also be defined as the avoidance of injuries to patients from care that was intended to help them (WHO, 2006; Phil *et al.*, 2007). Safety at the health-care facilities improves service quality outcomes according to empirical and seminal reports (Donabedian, 1988; Kohn *et al.*, 1999). Again, strict adherence to safety and precautionary measures by the health service provider boost patients' confidence, allay their fears of worsen conditions and possibility of death (Kohn *et al.*, 1999; Leape and Berwick, 2005). The level of safety net measure practised by the health service provider positively affect perceived service quality, patient's satisfaction, service utilization, patient's recovery rate, and word-of-mouth (WoM) referrals by patients to service providers. Evidentially, there is a zillion of studies that positively link safety working environment with perceived service quality and its satisfaction and loyalty attendants (Bloom *et al.*, 2004; Sweeney *et al.*, 2007; Phil *et al.*, 2007; WHO, 2016a, 2016b; Peter, 2019). Accordingly, we hypothesized that:

H4. There is a significant association between safety and patients' perceived service quality.

2.5 Tangibility

The physical atmosphere of the health service provider impacts tremendously on patient's satisfaction on the quality of care and service utilization (Taylor, 1994; Kotler, 1973). It can be inferred from the popular dictum "first impression counts" that, patients form their initial impression of healthcare service providers via their physical surroundings. A neat and impressive hospital facility (and neatly dressed staff) boosts patients' confidence level, pre-purchase and post-purchase intentions (Hair, 1998). Landmark research opines that clean and impressive healthcare facility has the propensity to meet patients' perceived expectations, heighten the confidence level of both the provider and the recipient of healthcare service. The degree of neatness at hospitals motivates patients' decisions relative to the preparedness of health service providers to meet their medical needs. It also creates customization and competitive niche within the health service industry (Taylor, 1994; Hardy *et al.*, 1996). From these deductions, we hypothesized that:

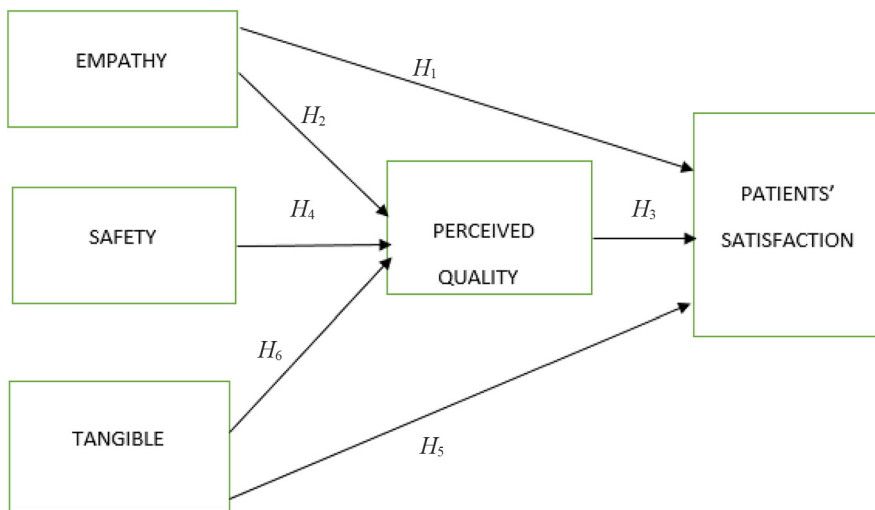
H5. There is a significant association between tangibility and patients' satisfaction.

H6. There is a significant association between tangibility and patients' perceived service quality.

Figure 1 summarizes the proposed relationship among perceived service quality, empathy, safety, tangible and patients' satisfaction.

3. Materials and methods

With our proposed EST-PEQ framework for measuring health-care service quality and its antecedents – patients' satisfaction and continuous service utilization, a five-point Likert scale measurement tool, ranging from strongly disagree (1) to strongly agree (5) was developed from the constructs – perceived quality (PEQ); patients' satisfaction (PSTAT); empathy (EMP); safety (SAF); and tangibility (TAN). The questionnaire was professionally designed via a series of peer review exercises to perfectly fit all the constructs under consideration. The questionnaire had a total of five factors comprising 27 reflective latent variables (see Appendix). A total of 400 questionnaires were distributed at selected hospitals of the Koforidua Township in Ghana. Out of the 400 questionnaires administered, a total of



Patients' satisfaction in Ghana

Figure 1.
The Proposed EST-PEQ conceptual framework

398 (representing 99.5 per cent) were retained for the study after cleaning the field data. The remaining two were discarded due to serious abnormalities in the form of missing values and unengaged responses. The selection of the study area (Koforidua) was based on economic resources utilization, convenience and efficiency in questionnaire administration. However, the selection of the hospitals was based on their sizes and level of operations. These hospitals were the major and principal hospitals within the Koforidua Township, and thus, they form the nucleus of health-care service delivery.

Prior to the pilot survey to validate the questionnaire instrument, we first sought administrative approval from these selected hospitals and, also provided them with a copy of our questionnaire and patients' consent form. The final survey was done in these selected hospitals with research assistants who were carefully briefed on how the administration and distribution of the questionnaire were to be done. The questionnaires were administered between the months of January and February, 2018, to only out-patients who have visited the selected hospital for medical services. Due to the unavailability of practical sampling frame, we used convenience sampling technique to sample the respondents at the OPD and the Dispensary departments of the selected hospitals while they were waiting to be served. Others were also sampled at the hospitals' canteens. After introduction, those who were willing to partake in the survey were given a copy of the questionnaires and a consent form to fill out. The questions were read out and vividly explained to those with reading problems before they were guided to fill out the questionnaires. This "special group" was professionally handled to eschew any tendency of bias and leading questions. In-patients were not captured in the survey because we were not granted authorization to in-patient's wards.

Structural equation modeling (SEM), otherwise known as analysis of covariance structure was used to analyze the structural (causal) relationships among the measured (observed) variables and the unobserved variables. In detail, SEM is a linear statistical technique consisting of multiple regression and factor analysis (FA) and thus, was used to impute the hypothesized causal relationships between the latent constructs from the measured variables (Fornell and Larcker, 1981; Akaine, 1987). SEM is a confirmatory

technique (rather than exploratory), and as a result it is used to determine (confirm) whether a model is valid rather than as a mechanism for finding the best fit model (Muller, 1996; Bagozzi, 1993).

After the questionnaire administration, they were screened for data entering. Further screening and mediation techniques were done after the data entering to address issues of data vacancy (missing data), skewness, kurtosis, and outliers to check for model adequacy, reliability and validity. We used IBM SPSS version 21, and version 21 of the Analysis of Moment Structure (AMOS) Graphics for our analyses (Byrne, 2004; Nunnally and Bernstein, 1994; Aikin *et al.*, 1994).

Exploratory data analyses (EDA) were iteratively done to obtain a cleaned pattern matrix so as to resolve problems of discriminant and convergent validity among the reflective latent variables. The validity test was done based on Cronbach's alpha values and factor correlation matrix. Again, confirmatory factor analysis (CFA) and principal component analysis (PCA) were conducted to further test for discriminant and convergent validity and other model fit estimates (Lee, 2007; Anderson and Gerbing, 1988).

4. Results and discussion

As pointed out already, the collected data was analyzed with version 21 of both IBM SPSS and AMOS Graphics. The sex distribution of the 398 respondents (i.e. those retained after data screening) from the selected hospitals were 220 for females (55.3 per cent) and 178 for males (44.7 per cent). Also, the age distributions were obtained as 65 for the age bracket "Below 20" (16.3 per cent); 74 for "20-29" (18.6 per cent); 128 for "30-39" (32.8 per cent); and 131 for "40 and above" (32.9 per cent).

4.1 Exploratory data analyses and confirmatory measurement model

Both EDA and CFA were conducted to test for adequacy, reliability, convergent and discriminant validity of the measurement model and goodness-of-fit for model fit measurements. Preliminary analyses were conducted to reduce data dimensionality and create suitable dimensions for the ensuing further analysis. Maximum likelihood method with Promax rotation was used to group the variables under few unrelated factors; and consequently, the effectiveness of our proposed model and the aforementioned psychometric properties of the scale were assessed.

The results of the factor analysis gave a KMO of 0.911 (significant at 0.000), which exceeded the required threshold of 0.7, for adequacy. Another indication of measurement Adequacy in the model was that, the extraction of communalities of reflective factor loadings were all above 0.3. "Model Adequacy in SEM means how well a hypothesized model 'fit' or adequately describes a sample data" (Burne, 2000).

The reliability of constructs in the model were assessed by the Cronbach's alpha values. This was done to test the internal consistency of the model. Table I shows Cronbach's alpha values of our six-factor model, and each value exceeded the recommended threshold of >0.7 (Churchil, 1979; Lee, 2007). As an evidence of convergence validity in the model, all the factor loadings of the reflective variables were ≥ 0.5 (recommended threshold) as depicted in Table I. Again, Figure 2, gives a graphical evidence of convergent validity in the model. The standardized regression estimates (weights) on the path diagram of Figure 2, exceeded the recommended threshold of >0.7, (Burne, 2001) and thus, the convergent validity of the model was established.

We further constructed a 95 per cent confidence interval to obtain a deeper information about the population parameter relative to internal consistency (Koning and Frances, 2003).

						Patients' satisfaction in Ghana
Cronbach's alpha	0.930	0.923	0.932	0.896	0.847	
SAF 1				0.781		
SAF 2				0.858		
SAF 3				0.908		
SAF 4				0.864		
SAF 5				0.868		
PSTAT 1					0.699	
PSTAT 2					0.765	
PSTAT 3					0.830	
PSTAT 4					0.769	
PSTAT 5					0.558	
TAN 1		0.623				
TAN 2		0.908				
TAN 3		0.852				
TAN 4		0.917				
TAN 5		0.790				
TAN 6		0.732				
EMP 1			0.682			
EMP 2			0.889			
EMP 3			0.778			
EMP 4			0.793			
EMP 5			0.804			
PEQ 1	0.768					
PEQ 2	0.789					
PEQ 3	0.904					
PEQ 4	0.912					
PEQ 5	0.866					
PEQ 6	0.729					

Notes: SAF= Safety; PSTAT = Patients' Satisfaction; TAN = Tangibility; EMP = Empathy; PEQ = Perceived Quality

Table I.
Pattern matrix and Cronbach's alpha statistics of factor loading

We were therefore, 95 per cent confidence that, the actual Reliability of the population from which our sampled was obtained is between 0.912 and 0.934 as demonstrated in [Table II](#).

To ascertain the discriminant validity of the model, [Figure 2](#), [Tables I](#) and [III](#), were used based on the recommended thresholds.

As evidence in [Table I](#), there were no cross-loadings among the reflective factors and also none of the off-diagonal values of [Table III](#) exceeded the recommended threshold of >0.7 ([Nunnally and Bernstein, 1994](#)). [Figure 2](#) gives a confirmatory evidence of discriminant validity in our six-factor model. The standardized estimates among the unobserved (exogenous) variables were all below the recommended threshold of <0.8, as depicted in [Figure 2](#). Consequently, both EDA and CFA results for adequacy, reliability, convergent and discriminant validity overwhelmingly supported our model.

4.2 Structural modeling analysis and model testing

After the Psychometric properties of the measurement scale of the model were achieved, the structural model was evaluated based on the mathematical sign (“+” or “-”), size (magnitude) and the levels of significance of the standardized estimates on the regression paths of both the observed and unobserved factors. The structural model assessment results are shown in [Table IV](#), and [Figures 2](#) and [3](#), and the significance of the regression path estimates were established on the basis of correlations coefficients (r) among the constructs – perceived quality, safety, empathy,

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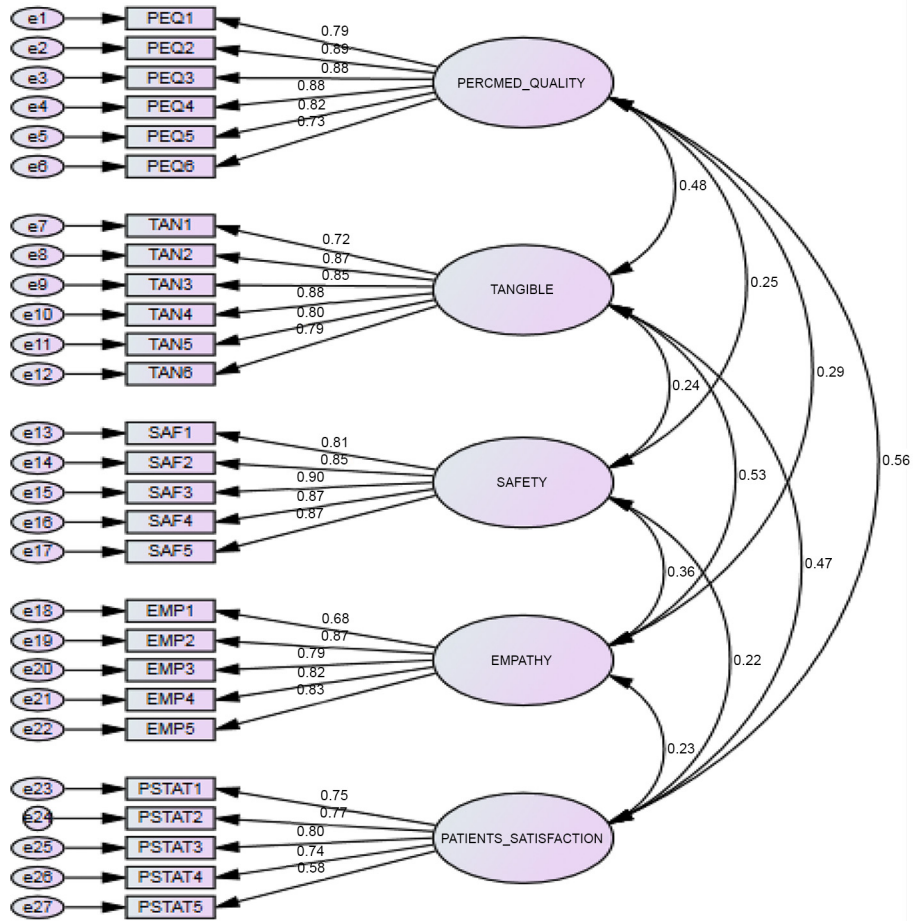


Figure 2. AMOS graphics CFA output for discriminant and convergent validity test

Intraclass correlation	95% confidence interval <i>F</i> test with true value						
	Lower bound	Upper bound	Value	df1	df2	Sig	
Single measures	0.308	0.277	0.343	13.014	397	10322	0.000
Average measures	0.925	0.912	0.934	13.014	397	10322	0.000

Constructs	SAF	PSTAT	TAN	EMP	PEQ
SAF	1.000				
PSTAT	0.460	1.000			
TAN	0.245	0.233	1.000		
EMP	0.265	0.511	0.345	1.000	
PEQ	0.554	0.465	0.223	0.213	1.000

Table III. Factor correlation matrix

tangibility, and patients' satisfaction. Perceived quality was found to associate significantly with tangibility and patients' satisfaction, and hence providing support for *H3* ($\beta = 0.57$), and *H6* ($\beta = 0.48$); while tangibility and patients' satisfactions associated significantly to provide support for *H5* ($\beta = 0.47$). In detail, patients were relatively content with the experiencescape and the visible

Hypotheses	Paths	Standard path coefficient β_s	Results
<i>H1</i>	EMP → PSTAT	0.23	Not Supported
<i>H2</i>	EMP → PEQ	0.29	Not Supported
<i>H3</i>	PEQ → PSTAT	0.57*	Supported
<i>H4</i>	SAF → PEQ	0.25	Not Supported
<i>H5</i>	TAN → PSTAT	0.47*	Supported
<i>H6</i>	TAN → PEQ	0.48*	Supported

Note: * $p < 0.001$

Table IV.
Path coefficients and their significance

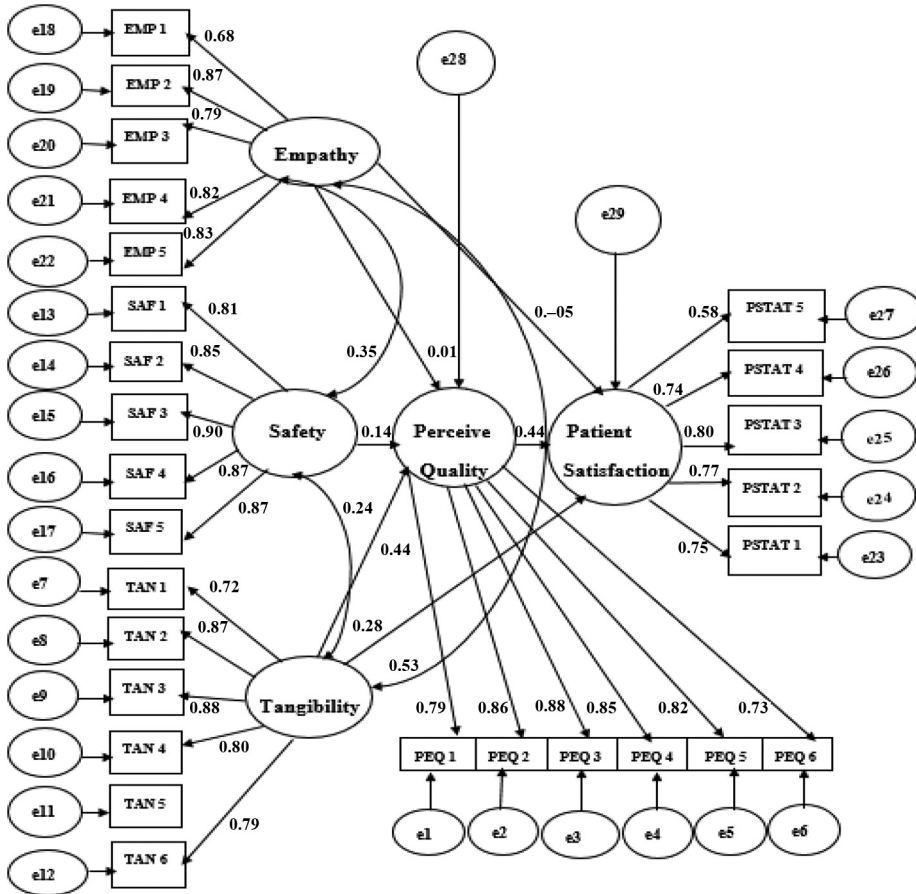


Figure 3.
AMOS graphics estimates of the structural model

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surroundings of the hospitals and, as such gave higher ratings on the construct that was used to measure it – i.e. tangibility. This may be attributed to the recent face-lift exercise in most of the hospitals in Ghana as part of the roadmap to attain the MDGs and SDGs. Furthermore, the results indicated positive relationship among the subconstruct – perceived quality, patients’ satisfaction and tangibility. Patients’ judgment in terms of quality of service and service satisfaction were informed by the experiencescape – tangibility.

On the other hand, due to explanatory reasons, the associations among perceived service quality, empathy, safety, and patients’ satisfaction were insignificant, and therefore did not provide support for $H1(\beta = 0.23)$, $H2(\beta = 0.29)$ and $H4(\beta = 0.25)$ (Table IV). In particular, patients demonstrated their utmost displeasure on empathy as a construct. That is patients were not satisfied with the overall attitude, experience and encounter with healthcare professionals at the hospitals. This may be as a result of the excessive waiting time at the hospitals due to the twin problem of inadequate hospitals and poor doctor-patient ratio in Ghana [1: 8000, Asiedu-Addo (2017)]. Again, the introduction of National Health Insurance Scheme in Ghana has increased attendance at the hospitals exponentially, without a corresponding increment in health infrastructures and manpower. As a result, pressure is always mounted at the limited hospitals – this in turn has negatively affected the interpersonal relationship between patients and healthcare professionals. A score of the health official are not handling patients with the maximum level of patience and attention that ought to be professionally displayed. Patients’ displeasure of the attitude of health professionals resulted in the insignificant relationship amongst the constructs empathy, perceived quality and patients’ satisfaction.

Contrary to our expectation (Kohn *et al.*, 1999; Leape and Berwick, 2005; Donabedian, 1988), we did not find a significant positive relationship between safety and perceived quality ($\beta = 0.23$). This means that safety as an independent variable did not attract high scores on the five-point Likert score that was used in the survey – patients discontent about safety conditions. This therefore calls for the urgent need to beef-up safety and security measures at the various hospitals.

To assess construct validity and goodness-of-fit for subsequent model fit, we examined the correlations between the observed factor loadings and the unobserved factors and also the correlation among the unobserved factors as indicated on the various regression paths of the standardized estimates in Table IV and Figures 2 and 3.

To test for overall model fit to ascertain whether our hypothesized model “fits” the sample data, the following model fit indices were used – Chi-square (χ^2/DE); Standardized Root Mean Square Residual (SRMR); Goodness-of-fit Index (GFI); Adjusted Goodness-of-fit Index (AGFI); Parsimony Goodness-of-fit Index (PGFI); Comparative Fit Index (CFI); Root Mean Square of Approximation (RMSEA); and lastly, Normed Fit Index (NFI) as portrayed in Table V.

According to Table V, the Chi-square value (2. 241) fell within the recommended value of <3.0; the RMSEA value (0.560) met the acceptable threshold of <0.8 (Steiger, 1990).

Model	χ^2/DE	P	SRMR	GFI	AGFI	PGFI	CFI	RMSEA	NFI
Goodness-of-fit	2.241	0	0.030	0.88	0.857	0.732	0.950	0.560	0.913
Recommended value	<3.0	<0.05	≤ 0.1	>0.8	>0.8	>0.8	>0.9	<0.08	>0.9

Table V.
Goodness-of-fit statistics

Notes: p = p -value; RMR= Standardized Root Mean Square Residual; GFI = Goodness -of-fit Index; AGFI = Adjusted Goodness-of-fit Index; PGFI = Parsimony Goodness-of-fit Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square of Approximation; NFI = Normed Fit Index

SRMR value (0.030) was within the recommended threshold of ≤ 0.1 (Hu and Bentler, 1999); and GFI value of 0.88 met the acceptable threshold of >0.8 (Hu and Bentler, 1999).

The remaining measures of fit, namely, AGFI (0.857), PGFI (0.732), CFI (0.950) and NFI (0.913), all met the recommended thresholds of >0.8 (Mulaik *et al.*, 1989), >0.8 (Bentler, 1992), >0.9 (Joreskog and Sorbom, 1996), and >0.9 (Bentler, 1992), respectively. These model fit indices as depicted in Table V, collaboratively supported our model, and thus, we can conclude that our hypothesized model overwhelmingly fit the sample data. This further proves the excellent robustness of our model in terms of its predictive capability of patients' satisfaction and continuous service utilization from the standpoint of perceived service quality, empathy, safety and tangibility.

5. Conclusion and managerial implications

The attainment of certain health indices for sustainable socio-economic development has being a global concern and, accordingly, has attracted much attention at every socio-economic and developmental program. Again, individual researchers and research organizations have unrelentingly attempted to determine the factors that underpin health-care service quality and its antecedent – patients' satisfaction construct with diverse proposed service quality dimensions such as SERQUAL, SERPERF and HEALTHQUAL (Yamoah and Adom, 2014; Lee, 2016; Shalini and Masood, 2018).

By examining the dimensions of quality health-care service delivery to gauge patients' satisfaction level via our proposed EST-PEQ framework, we deepen the horizon of the debate on healthcare service quality and patients' satisfaction constructs by addressing a knowledge gap, while proffering an in-depth and empirical insight into the existing stock of literature in the contextualization of Ghana and beyond.

The study examined the moderating role of perceived service quality among safety, empathy, empathy and patients' satisfaction. Accordingly, six hypothesized associations were developed of which three were supported with sound psychometrical measurement scales after testing. Consistent with previous studies (Mitchell, 1978; Parasuraman *et al.*, 1988a, 1988b; Curry and Singlair, 2002; Ayimbilag *et al.*, 2011; Bahrami *et al.*, 2012; Adem *et al.*, 2017; Sweta *et al.*, 2019; Mehmet *et al.*, 2019; Dana and Roberta, 2015; Ajwinder *et al.*, 2018), our results demonstrated that perceived service quality, and tangibility associate positively with patients' satisfaction, and continuous service utilization. However, contrary to evidence in previous studies (Peter, 2019; Shalini and Masood, 2018; Robin *et al.*, 2010; Sweta *et al.*, 2019; Kohn *et al.*, 1999; Leape and Berwick, 2005; Curry and Singlair, 2002; Fottler *et al.*, 2002; Rafiei, 2017), our results did not demonstrate significant contributions of empathy and safety in predicting patients' satisfaction. These outcomes were, however, explainable.

Empathy encapsulates the sharing and understanding of one's plight, experience or emotions. Safety on the other hand entails the delivery of healthcare service which reduces the risk to harm patients. The weak contributions of empathy and safety in predicting patients' overall health-care service satisfaction were as a result of mixed reactions exhibited in the responses. In detail, naive patients with lower expectations might have given higher scores for empathy and safety. However, sophisticated patients with higher expectation might have scored empathy and safety lower because they were least impressed by the quality of health service. This therefore suggests that a cross-section of the patients was not very much enthused with the behavior of health professions when receiving health services – hospital staff were not being sympathetic and considerate; and also, safety protocols at the hospitals fell below the expectation of some patients. Patients do not feel at ease when transacting business at the hospitals. This may be due to the amount of pressure that have been created at most of

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the hospitals in Ghana as a result of excessive upsurge in attendance coupled with inadequate hospitals and human resources as the doctor–patient ratio is currently begging at 1: 8000.

The current conditions at the hospitals as demonstrated by some patients present a clarion call to action by the top hierarchy of Ministry of Health (MoH) to arrest the alarming situation. MoH as a matter of urgency must embark on a massive infrastructural expansion drive by building new hospitals, resourcing old ones, and elevating some strategic clinics to hospital status. This will reduce congestions and the accompanying unbearable waiting-time; and pressure on hospital staff. The alarming doctor-patient ratio in Ghana is attributed to a number of factors such as strict admission requirement into medical schools due to limited facilities, high cost of medical education (fee-paying), and employee attrition – in search for greener pastures abroad. These factors, cumulatively, reduce the supply of doctors and other health professionals in Ghana. The following steps can, however, be taken to ameliorate the present situation.

First, Ghana Education Service (GES) and MoH through their constitutional mandate can collaborate to improve the number of people who gain admission into medical schools by improving the level of secondary education and, also embark on a massive infrastructural retooling for teaching and learning of medicine. Second, medical education is mostly offered on fee-paying basis, and as a result a handful applicant with the economic wherewithal are offered admissions. Against this backdrop, we suggest that the government of Ghana through parliamentary approval must enact scholarship policies for the needy-but-brilliant students who want to read medicine. Third, as part of the measures to curtail the rate of doctors' attrition, the government of Ghana as a matter of urgency must institute measures to improve doctors' remuneration and conditions of service. Also, the government of Ghana must make a budgetary allocation for incentive packages to doctors who accept postings in rural and deprived areas since such places constantly face acute shortage of doctors.

Furthermore, the hospital management team must embark on a sensitization campaign to drum home a patient-friendly atmosphere among the hospital workforce. Again, management can place "Suggestion Boxes" at vantage locations of the hospitals to gather concerns of aggrieved patients for attention. MoH must enforce safety measures by collaborating with accrediting institutions of hospitals, and Ghana Standard Authority for routine safety checks at the hospitals. Also, hospitals' management teams can beef-up the security protocols at the various hospitals by providing CCT cameras at certain vantage locations at the hospital in Ghana. Managerial reconsideration in the above areas will eventually trigger off a domino effect for the attainment of a holistic healthcare service quality and maximum patients' satisfaction in Ghana.

Ghana remains dedicated to achieving its socio-economic and developmental goal, and health service quality is indispensable in pursuance of these goals. Therefore, apart from our modest contribution to literature on assessment of health service quality and patients' satisfaction in Ghana; our findings will serve as a precursor, policy guide and reference material to stakeholders and future researchers on the health system of Ghana and other African countries with socio-cultural and economic commonalities.

6. Limitations and future research direction

The study provides overarching contributions to service quality literature, specifically, in the context of healthcare service delivery. However, it is not without limitations, and thus, prospective users of its results are cautioned on certain pertinent features of the study. First, the study which was cross-sectional in nature, principally focused only on regular outpatients of selected hospitals within the Koforidua township of Ghana. Moreover, the various maladies reported by respondents at these selected hospitals were not captured to know their plausible

mediating and moderating effects, and as such, places a constraint on generalization. We, therefore, suggest that future studies should move beyond cross-sectional to longitudinal studies; and also capture the various maladies reported by patients so as to address their plausible mediating/moderating roles in healthcare service quality and its attendant patients' satisfaction construct. Second, the study relied solely on the four constructs – empathy, safety, tangible and perceived quality to predict patients' satisfaction. We, therefore, recommend that future research should use other constructs that are outside the domain our constructs to confirm our results. Third, the study is confined to the application of traditional statistics – i.e. multiple regression to understand the relationships among the studied constructs. There are, however, empirical evidence that traditional statistics is characterized with the problem of net effect and unifinality. From the forgoing, we recommend that future studies should consider studies on health-care satisfaction from a non-traditional standpoint – for instance, the application of fuzzy set qualitative comparative analysis (fsQCA) and complexity theory to address the problem of unifinality and net effects.

References

- Aaker, D.A. (1991), *Managing Brand Equity: Capitalizing on the Value of Brand Name*, The Free Press, New York, NY.
- Abbie-Gayle, J. and Neuhofer, B. (2017), "Airbnb – an exploration of value co-creation experiences in Jamaica", *International Journal of Contemporary Hospitality Management*, Vol. 27 No. 9, pp. 2361-2376.
- Abramowitz, S., Cote, A. and Berry, E. (1987), "Analyzing patient satisfaction: a multianalytic approach", *Qrb – Quality Review Bulletin*, Vol. 13 No. 4, pp. 122-130.
- Adem, K., Dilek, K. and Merve, A. (2017), "Examining intention to adopt to internet of things in healthcare technology products", *Kybernetes*, doi: [10.1108/K-02-2017-0045](https://doi.org/10.1108/K-02-2017-0045).
- Aikin, L.S., Stein, J.A. and Bentler, P.M. (1994), "Structural equation modeling analysis of clinical sub-population diff. and comparative treatment outcomes: characterizing the daily lives of drug addicts", *Journal of Consulting and Clinical Psychology*, Vol. 62, pp. 488-499.
- Ajwinder, S., Ajay, P. and Navdeep, K. (2018), "Assessment of hospital service quality parameters from patient, doctor and employees' perspectives", *Total Quality Management and Business Excellence*, pp. 1-20, doi: [10.1080/14783363.2018.1487283](https://doi.org/10.1080/14783363.2018.1487283).
- Akaine, H. (1987), "Factor analysis and akaine information criteria (AIC)", *Psychometrika*, Vol. 52, pp. 317-332.
- Anatoly, K. and Alexander, M. (2016), "The experience economy approach to marketing les plus beaux villages Brand in Russia", *Worldwide Hospitality and Tourism Themes*, Vol. 8 No. 3, pp. 22-35.
- Anderson, J.C. and Gerbing, D.W. (1988), "Structural equation modeling in practice: a review and recommended two-step approach", *Psychological Bulletin*, Vol. 103 No. 3, pp. 411-423.
- Asiedu-Addo, S. (2017), "Graphic online: Akuffo-Addo alarmed at inadequate doctor-patient ratio", available at: www.graphic.com.gh/news/general-news/akufo-addo-alarmed-at-inadequate-doctor-patient-ratio.html
- Attaran, A. (2005), "An immeasurable crisis? A criticism of the millennium development goals and why they cannot be measured", *PLOS Medicine*, Vol. 2 No. 10.
- Ayimbillag, R.A., Abekah-Nnkrumah, G. and Domfeh, K.A. (2011), "Managing healthcare quality in Ghana: a necessity of patient satisfaction", *Int. J. Healthc. Assur*, Vol. 24 No. 7, pp. 548-562.
- Bagozzi, R.P. (1993), "Assessing construct validity in personal research: application to measures of self-esteem", *Journal of Research in Personality*, Vol. 27 No. 1, pp. 49-87.
- Bahrami, M., Nasiri, S., Arab, M., Ranjbor, E., Zare, A. and Hataminasab, S. (2012), "Analysis of SERQUAL in Shahid Sadoghi hospital, Yazd, Iran", *Hormozgan Med J*, Vol. 18 No. 4, pp. 333-340.

K

- Bentler, P.M. (1992), "On the fit of the models of covariance and methodology to the bulletin", *Psychological Bulletin*, Vol. 112 No. 3, pp. 400-404.
- Berry, L.L., Parasuraman, A. and Zeithaml, V.A. (1985), "A conceptual model of service quality and its implications for future research", *Journal of Marketing*, Vol. 4 No. 49, pp. 41-50.
- Bloom, D.E. and Canning, D. (2008), "Population health and economic growth: commission on growth and development", Working Paper No. 24.
- Bloom, D.E., Sevilla, J. and Canning, D. (2004), "The effect of health on economic growth: a production function approach", *World Development*, Vol. 32 No. 1.
- Buttell, P. and Hendler, R. (2007), "Quality in healthcare: concepts and practice", *The Business of Healthcare*, Vol. 3, pp. 61-95.
- Byrne, B.M. (2004), "Testing for multi-group invariance using AMOS graphics: a road traveled", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 11 No. 2, pp. 272-300.
- Calnan, M.R., Katsouyiannopoulos, V., Ovcharov, V.K. and Prokhorskas, R. (1994), "Major determinants of consumer satisfaction with primary care in different health systems", *Family Practice*, Vol. 11 No. 4, pp. 468-475.
- Canagarajah, X. and Sudharshan, Y. (2001), *Public Health and Education Spending in Ghana in 1992-98*, World Bank Publication, p. 21.
- Choi, K.S., Lee, H., Kim, C. and Lee, S. (2008), "Service quality dimensions and patient satisfaction relationships in South Korean: comparisons across gender, age, and types of service", *Journal of Services Marketing*, Vol. 19 No. 3, pp. 140-149.
- Churchil, G.A. (1979), "A paradigm for developing better measures of marketing constructs", *J. Mark*, Vol. 16 No. 1, pp. 70-74.
- CIA (2017), "Health expenditures.cia.gov", available at: www.cia.gov/library/publications/the-world-factbook/fields/409.html
- Cohen, G. (1996), "Age and health status in a patient satisfaction survey", *Social Science and Medicine*, Vol. 42 No. 7, pp. 1085-1093.
- Cole, M.A. and Neumayer, E. (2006), "The impact of poor health on total factor productivity", *The Journal of Development Studies*, Vol. 42 No. 6, pp. 918-938.
- Coye, M.J. (2001), "No toyotas in healthcare: why medical care has not evolved to meet patients' needs", *Health Affairs*, Vol. 20 No. 6, pp. 44-56.
- Cronin, J. and Taylor, S. (1992), "Measuring service quality: a re-examination and extension", *Journal of Marketing*, Vol. 56 No. 3, pp. 55-68.
- Curry, A.C. and Singlair, E. (2002), "Assessing the quality of physiotherapy services using SERVQUAL", *International Journal of Health Care Quality Assurance*, Vol. 15 No. 5, pp. 197-205.
- Dana, M.J. and Roberta, S.R. (2015), "SEM of service quality to predict overall patient satisfaction in medical clinics: a case study", *Quality Management Journal*, Vol. 4 No. 22, pp. 18-36, doi: [10.1080/10686967.2015.11918448](https://doi.org/10.1080/10686967.2015.11918448).
- David, M.F. (2001), "The Long-Term impact of health on economic growth in Mexico, 1950-1995", *Journal of International Development*, Vol. 13 No. 1, pp. 123-126.
- Deming, W.E. (1994), *The New Economics*, 2nd ed., SPC Press.
- Demirel, Y., Yoldas, M.A. and Divanoglu, S.U. (2009), "The determinants of service quality satisfiers and dissatisfies", *Int. J. Serv. Ind. Manag*, Vol. 6 No. 5, pp. 353-371.
- Direktor, E. and Yesilada, F. (2010), "Health service quality: a comparison of public and private hospitals", *Afri J Bus Manag*, Vol. 4 No. 6, pp. 962-971.
- Doku, S.K.O., Nketiah-Amponsah, E., Janssens, W. and Pradhan, M. (2018), "Perceptions of healthcare quality in Ghana: does health insurance status matter?", *Public Library of Science*, Vol. 13 No. 1.

- Donabedian, A. (1988), "The quality of care: how can it be assessed?", *JAMA*, Vol. 260 No. 12, pp. 1743-1748.
- Donabedian, A. and Arbor, A. (1980), *The Definition of Quality and Approaches to Its Assessment Explorations in Quality Assessment and Monitoring*, Vol. 1, Health Administration Press.
- Edvardsson, B. (2005), "Gurus' view: service quality beyond cognitive assessment, passengers' behavioral intentions", *Journal of Travel Research*, Vol. 42, pp. 397-400.
- Eran, K. (2018), "It's all about you: destination marketing campaigns in the experience economy era", *Tourism Review*, Vol. 73 No. 3, pp. 331-343, doi: [10.1108/TR-03-2017-0053](https://doi.org/10.1108/TR-03-2017-0053).
- Evans, D.B., Edejer, T.T., Lauer, J., Frenk, J. and Murray, C.J. (2001), "Measuring quality from the system to the provider", *International Journal for Quality in Health Care : Journal of the International Society for Quality in Health Care*, Vol. 13 No. 6, pp. 439-444.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurements error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Fottler, M.D., Ford, R.C. and Heaton, C. (2002), *Achieving Service Excellence: Strategies for Health*, Health Administration Press, Chicago.
- Haines, A. and Cassels, A. (2004), "Can the millennium development goals be attained?", *BMJ (Clinical Research ed.)*, Vol. 329 No. 7462, pp. 394-397.
- Hair, L.P. (1998), "Satisfaction by design", *Mark. Health Serv*, Vol. 6, pp. 5-8.
- Hardy, G., West, M. and Hill, F. (1996), "Components and predictors of patient satisfaction", *British Journal of Health Psychology*, Vol. 1 No. 1, pp. 65-85.
- Hayes, O. (2017), "The most common diseases in Ghana and their prevention", available at: <https://borgenproject.org/common-diseases-in-ghana/>
- Hu, L.T. and Bentler, P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternative", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 6 No. 1, pp. 1-55.
- Hutton, G. (2017), *The Costs of Meeting the 2030 Sustainable Development Goal Targets on Drinking Water, Sanitation, and Hygiene*, World Bank.
- Institute of Medicine (2001), *Crossing the Quality Chasm: A New Health System for the 21st Century*, National Academy Press, Washington, DC.
- Joreskog, K.G. and Sorbom, D. (1996), *LISREL 8. Users Reference Guide*, Scientific Software International, Chicago.
- Koehler, W., Bowers, M. and Swan, J. (1994), "What attributes determine quality and satisfaction with healthcare delivery?", *Health Care Management Review*, Vol. 19 No. 4, pp. 49-55.
- Kohn, K.T., Corrigan, J.M. and Donaldson, M.S. (1999), *To Err is Human: Building a Safer Health System*, National Academy Press, Washington, DC.
- Koning, A.J. and Frances, P.H. (2003), "Confidence interval for Cronbach's confidence alpha values", ERIM Report Series.
- Kotler, P. (1973), "Atmospheric as a marketing tool", *J. Retail*, Vol. 49 No. 4, pp. 48-64.
- La-Verle, B. (1994), *Ghana Healthcare Ghana: A Country Study*, Federal Research Division, Library of Congress.
- Leape, L. and Berwick, D. (2005), "Five years after to err is human: what have we learned?", *Journal of the American Medical Association*, Vol. 293 No. 19, pp. 2384-2390.
- Lee, D. (2016), *HEALTHQUAL: A Multi-Item Scale for Assessing Healthcare Service Quality*, Springer-Verlag, Berlin Heidelberg.
- Lee, S. (2007), *Structural Equation Modeling: A Bayesian Modeling*, Sage, Thousand Oaks, CA.
- Mcneil, J., Phillips, P., Scobie, S. and Thomson, R. (2000), "Measurement of safety and quality healthcare", *Medical Journal of Australia*, Vol. 184 No. 10, pp. 51-55.

K

- Maret, S. (2011), "True community: connecting the millennium development goals to public library services in the United States", *Information, Soc. Justice*, Vol. 4 No. 2, pp. 29-55.
- Mehmet, P., Öznur, P.İ. and Hayriye, K. (2019), "Evaluation of healthcare service quality via servqual scale: an application on a hospital", *International Journal of Healthcare Management*, Vol. 12 No. 4, pp. 340-347, doi: [10.1080/20479700.2017.1389474](https://doi.org/10.1080/20479700.2017.1389474).
- Mitchell, J.H. (1978), "Hospital case records – eight years On", *Kybernetes*, Vol. 7 No. 1, pp. 25 -29.
- Mohammed, M. (2005), "An empirical study of patients' expectations and satisfaction in egyptian hospitals", *International Journal of Health Care Quality Assurance*, Vol. 18 No. 7, pp. 516-532.
- Mulaik, S.A., James, L.R., Van, A., Bennett, J., Lind, N.S. and Stilwell, S.D. (1989), "Evaluation of goodness-of-fit indices for structural equation models", *Psychological Bulletin*, Vol. 105 No. 3, pp. 430-445.
- Muller, R.O. (1996), *Basic Principle of Structural Equation Modeling: An Intro to LISREL and EQS*, Springer-Verlag, New York, NY.
- Myers, B. (1969), *A Guide to Medical Care Administration: concepts and Principles*, American Public Health Association, Washington, DC.
- Nketiah-Amponsa, E. (2009), "Determinants of consumer satisfaction of health care in Ghana: does choice of health care provider matter?", *Global Journal of Health Science*, Vol. 1 No. 2, pp. 50-60.
- Nunnally, J.C. and Bernstein, J. (1994), *Psychometric Theory*, 3rd ed., McGraw-Hill, New York, NY.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985), "A conceptual model of service quality and its implications for future research", *Journal of Marketing*, Vol. 49 No. 4, pp. 41-50.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988a), "Communication and control processes in the delivery of service quality", *Journal of Marketing*, Vol. 52 No. 2, pp. 35-48.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988b), "SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality", *Journal of Retailing*, Vol. 64 No. 1, pp. 12-37.
- Peter, A. (2019), "Service quality: a subliminal pathway to service differentiation and competitive advantage in private healthcare marketing in Ghana", *Health Marketing Quarterly*, Vol. 36 No. 2, pp. 136-151, doi: [10.1080/07359683.2019.1575062](https://doi.org/10.1080/07359683.2019.1575062).
- Phil, B., Headler, R. and Daley, J. (2007), "Quality in healthcare: concept and practice", *The Business of Healthcare*, Greenwood Publishing Group.
- Pine, B.J., II., and Gilmore, J.H. (2011), *The Experience Economy*, Updated Edition, Harvard Business Review Press, Boston, MA.
- Rafiei, M. (2017), "The effect of emotional quotient on the organizational citizenship behavior in some Iranian hospitals", *Kybernetes*, doi: [10.1108/K-01-2017-000](https://doi.org/10.1108/K-01-2017-000).
- Richard, B.C. and Sriram, D. (2014), "Experience psychology – a proposed new subfield of service management", *Journal of Service Management*, Vol. 25 No. 5, pp. 574-577, doi: [10.1108/JOSM-03-2014-0094](https://doi.org/10.1108/JOSM-03-2014-0094).
- Robin, L.S., Thomas, L. and Robert, A.F. (2010), "The effects of physicians' feelings of empowerment and service quality perceptions on hospital recommendations", *Quality Management Journal*, Vol. 17 No. 4, pp. 51-60, doi: [10.1080/10686967.2010.11918292](https://doi.org/10.1080/10686967.2010.11918292).
- Shalini, N.T. and Masood, H.S. (2018), "Assessing the quality of healthcare services: a SERVQUAL approach", *International Journal of Healthcare Management*, pp. 1-12, doi: [10.1080/20479700.2018.1469212](https://doi.org/10.1080/20479700.2018.1469212).
- Shelton, P. (2002), *Measuring and Improving Patient Satisfaction*, Jones and Bartlett Learning.
- Steiger, J.H. (1990), "Structural equation evaluation and modification: an interval estimation approach", *Multivariate Behavioral Research*, Vol. 23, pp. 173-180.

- Sweta, D., Sucharitha, S. and Vijaya, K. (2019), "Service quality in healthcare: exploring servicescape and patients' perceptions", *International Journal of Healthcare Management*, pp. 1-7, doi: [10.1080/20479700.2019.1605689](https://doi.org/10.1080/20479700.2019.1605689).
- Taylor, D.C., Carl, E.T. and Taylor, J.O. (2012), *Empowerment on an Unstable Planet: From Seeds of Human Energy to a Scale of Global Change*, Oxford Univ. Press, pp. 25-33.
- Taylor, S.A. (1994), "Distinguishing service quality from patient satisfaction in developing health marketing strategies", *Hosp. Heal. Serv. Adm.*, Vol. 39 No. 2, pp. 221-236.
- Wanjau, K.N., Wangari, B. and Ayodo, M.E. (2012), "Factors affecting provision of service quality in the public health sector: a case of Kenyatta National hospital", *International Journal of Humanities and Social Science*, Vol. 2 No. 13, pp. 114-125.
- WHO (1999), *Vision 2020: The Right to Sight Global Declaration of Support*, WHO Publications, Geneva.
- WHO (2006), *Quality of Care – a Process for Making Strategic Choice in Health System*, WHO Publications, Geneva.
- WHO (2015a), "Progress on SDGs", available at: www.aho.afro.who.int/profiles_information/index.php/Ghana:Progress_on_SDGs
- WHO (2015b), "Sustainable development goals", available at: www.aho.afro.who.int/en/publication/4946/health-mdgs-and-post-2015-sustainable-development-goals-sdgs
- WHO (2016a), "The health system", available at: www.aho.afro.who.int/profiles_information/index.php/Ghana:The_Health_System
- WHO (2016b), "African health observation", available at: www.aho.afro.who.int/en/publications
- WHO (2017), "Ghana progress on MDGs", available at: www.aho.afro.who.int/profiles_information/images/0/0c/Ghana-Statistical_Overview.pdf
- World Bank (2004), *Those Countries Having an Index Equal to 3.5 of the 'Country Policy and Institutional Assessment Index*, World Bank.
- World Bank (2006), *World Development Indicators: World Bank*, World Bank.
- Yamoah, E.E. and Adom, K. (2014), "Empirical investigation of service quality in Ghanaian hospitals", *Euro J Bus Manag.*, Vol. 6 No. 18, pp. 157-178.
- Zeithaml, V.A. (1993), "Consumer perception of price quality and value: a mean-end model and synthesis of evidence", *Journal of Marketing*, Vol. 52 No. 3, pp. 2-22.
- Zeithaml, V.A., Berry, L.L. and Parasuraman, A. (1985), "Problems and strategies in service marketing", *Journal of Marketing*, Vol. 49 No. 2, pp. 39-46.

Further reading

- Bara, A.C., Van, D.H., Maarse, J.A.M. and Dijk, J.P. (2002), "User's satisfaction with the Romanian health care system: an evaluation of recent health care reforms", *European Journal of Public Health*, Vol. 12 No. 4, pp. 39-40.
- Bentler, P.M. and Yuan, K.H. (1999), "Structural equation modeling with small sample: test statistics", *Multivariate Behavioral Research*, Vol. 58, pp. 4-17.
- Byrne, B.M. (2000), *Structural Equation Modeling, Basic Concepts, Application, and Programming*, 2nd ed., Routledge Taylor and Francis Group, New York, NY.
- Byrne, B.M. (2001), "Structural equation modeling with AMOS: basic concepts, applications and programming, testing for multistage invariance using AMOS graphics: a road less travelled", *Structural Equation Modeling*, Vol. 11, No. 2, pp. 272-300.
- Dagger, T.S., Sweetney, J.C. and Johnson, L.W. (2007), "A hierarchical model of health service quality: scale development and investigation of an integrated model", *Journal of Service Research*, Vol. 10 No. 2, pp. 123-142.

K

- Donabedian, A. (2003), *An Introduction to Quality Assurance in Health Care*, Oxford University Press, New York, NY.
- Doran, D. and Smith, P. (2004), "Measuring service quality provision within an eating disorders context", *International Journal of Health Care Quality Assurance*, Vol. 17 No. 7, pp. 377-388.
- Lee, S. and Oslon, D. (2013), "Healthcare quality management using the MBHCP excellence model", *Total Quality Management and Business Excellence*, Vol. 24 Nos 1/2, pp. 119-137.
- McGlynn, E.A., Asch, S.M. and Adams, J. (2003), "The quality of health care delivered to adults in the United States", *The New England Journal of Medicine*, Vol. 348 No. 26, pp. 2635-2645.
- Choi, K., Lee, H., Kim, C. and Lee, A. (2005), "The service quality dimensions and patient satisfaction relationships in South Korea: comparisons across gender, age and types of service", *J. Serv. Mark.*, Vol. 19 No. 3, pp. 140-150.

Appendix

Safety: Adapted from [Kohn et al. \(1999\)](#); [Leape and Berwick \(2005\)](#), [Donabedian \(1988\)](#):

- The hospital facility is safe from infection.
- I maintain the maximum feelings that the health-care professionals will not do mistakes in the service delivery process.
- The hospital operates in comfortable and safety atmosphere.
- I maintain an utmost degree of medical efficacy and efficiency whenever I am receiving treatment.
- Overall, I feel safe with respect to the level of security mounted on the premises of the hospital.

Tangibility: Adapted from [Taylor \(1994\)](#), [Kotler \(1973\)](#), [Hair \(1998\)](#):

- The hospital has up-to-date medical equipment.
- The hospital staff are well-dressed.
- The hospital has a hygienic and a well-designed landscape.
- The hospital has the required physical facilities for quality health service delivery.
- The hospital has an appealing environment.

Empathy: Adapted from [Curry and Singlair \(2002\)](#), [Fottler et al. \(2002\)](#), [Cohen \(1996\)](#), [Calnan et al. \(1994\)](#), [Abramowitz et al. \(1987\)](#):

- The hospital staff really understand patients' needs and problems.
- The hospital has convenient operating hours and reasonable waiting time.
- The hospital staff accord patients with the necessary attention and courtesy.
- The hospital offers reasonable and affordable services.
- The hospital has a flexible term of payment.

Perceived Quality: Adapted from [Koehler et al. \(1994\)](#), [Coye \(2001\)](#), [Lee \(2016\)](#), [Zeithaml \(1993\)](#):

- The hospital provides timely responses to my questions.
- I feel very secure when receiving healthcare services from health service providers.
- The hospital gives me sufficient information pertaining to my health status.
- The hospital has quality, knowledgeable and excellent staff.
- The hospital delivers on-time services.
- The hospital offers me the expected health-care service delivery.

Patients' satisfaction: Adapted from Sweeney *et al.* (2007), Evans *et al.* (2001), Cohen (1996), Calnan *et al.* (1994):

- I feel very satisfied with the services of my healthcare service providers.
- I am pleased with the health services experience offered by my health-care service providers.
- I feel very elated with the overall health-care service experience from the service providers.
- I am content with the healthcare delivery system of this hospital.
- Generally, I am satisfied with the healthcare package offered by my health service providers.

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