Sustainability of Health Institutions: The Impact of Service Quality and Patient Satisfaction on Loyalty

Antoinette Asabea Addo, Wang Wenxin, Dankyi Alex Boadi, Olivier Joseph Abban, Geoffrey Bentum-Micah

Abstract — Patient satisfaction is considered one of the preferred outcomes in health care as it is directly related to the re-use of health services and the success of the health care facility. The purpose of this study was to examine and analyze the effect of the quality of services of medical personnel on patient loyalty via the mediating influence of patient satisfaction. The study was designed using a cross-sectional questionnaire to collect data. 2372 outpatients were selected by simple random sampling. The data analysis method employed to test the hypotheses was the structural equation modeling (SEM). The results showed that the quality of service of the medical personnel as a positive association with patient satisfaction. Again, the higher the level of patient satisfaction, the higher the level of patient loyalty to medical services. Finally, the results of the indirect test supported the hypothesis of the hypothesis that the quality of service of medical personnel has a positive effect on patient loyalty via the mediating influence of patient satisfaction.

Index Terms — Service Quality; Medical Personnel Services; Patient Satisfaction; Patient Loyalty.

I. Introduction

In this era where patient satisfaction is used as a yardstick to measure the quality of services provided [1], [2], hospitals or medical institutions are left with little or no option than to improve to niche a greater market share in the growing competition among hospitals [3]. The prior focus of patients which was just securing access to medical services has shifted to a heightened interest in the quality of medical services. This is because the patient is now exposed to many options due to the increase in supply and thus makes the best choice in selecting a hospital to visit [4]. This phenomenon has mounted pressure on hospitals to satisfy patients and retain them [5]. In other words, greater patient satisfaction results in higher patient retention. Hospitals that fail to understand the implication of delivering quality services may be inviting a loss of patients which will eventually lead to the collapse of these institutions [6]. Moreover, to reduce the perceived risk of losing patients, hospitals now look beyond satisfaction to developing loyalty in order to ensure long term commitment to the hospital [7].

Modifying Parasuraman, Zeithaml [8] definition, we define service quality as "the overall evaluation of a specific healthcare unit that results from comparing that healthcare unit's performance with the patient's general expectations of how healthcare units should perform" or simply put "the patient's judgment about the overall excellence or superiority of a particular healthcare unit" [9], [10]. Furthermore, patient satisfaction is explained as "an evaluation of the perceived performance of the services received as against the patient's expectations", thus a patient is satisfied when performance exceeds their expectations and vice versa [11]. Patient loyalty, on the other hand, is defined as "a deeply held commitment to rebuy or patronize a preferred product/service consistently in the future, thereby causing repetitive same brand set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior"[12], [13].

Many studies have explored the link between service quality, patient satisfaction and patient loyalty in hospitals, clinics or medical institutions. Most of these studies looked at the broad aspect of service quality but this research narrows it down to consider only the quality of services of the medical personnel (doctors, laboratory technicians, and pharmacists). Thus, this research aims to analyze the relationship between the quality of services of medical personnel, patient satisfaction and consequently patient loyalty. The main reason for choosing these services is that no previous study has been conducted regarding these services in Ghana. There is a considerable gap in the evaluation of patient satisfaction in the existing literature which is often overlooked in empirical studies. The current study is particularly useful in assessing Ghana's health care system, which is often associated with a lack of patient satisfaction and quality of life. Based on the literature, no study of patient loyalty in Ghana was found, particularly in the following medical services (doctor services, pharmacy services, and laboratory technicians' services).

II. THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

A. Doctor/Physician services

The doctor-patient relationship and doctor-patient experience are found to have a significant influence on patient satisfaction [14] because physician behavior is considered a major component of patient satisfaction [15]. The patient, who visits a healthcare facility, is concerned with all aspects of the physician's behavior which includes communication,

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guidance, and information on the disease [16], the physician's medical knowledge, the comfortable and warm interaction with the physician [17], the physician's attitude, the physician's technical competence [18], the physician's reputation and others [19]. Studies have shown that patients are highly satisfied when their expectations are met and vice versa [20]. Satisfied patients are more likely to remain committed to their doctor, follow instructions, cooperate with their treatment, and make another appointment [21]. Contrarily, Hussain, Sial [20] found that doctor patient communication had an insignificant effect on patient satisfaction. Therefore, our study hypothesizes that:

H1: The quality of doctor services has a positive association with patient satisfaction.

B. Laboratory technicians

At present, laboratory services with diagnostic care are considered to be the backbone of the health sector [22]. The world has made progress in technology and the health sector is no exception. Diagnostic instruments used in laboratories (advanced ultrasound, magnetic resonance imaging, pathological tests, electrocardiograms) have saved millions of lives. Again, laboratory tests have helped doctors determine the severity of disease and administered treatment accordingly, hence researchers see laboratory services as an important part of health care. This aspect of health has been found to elicit satisfaction from patients [23]-[25]. Abera, Abota [26] in their study revealed that the overall level of patient satisfaction toward clinical laboratory services was 59.7% with a response rate of 210 (100%) which proves that laboratory services have a significant impact on patient hospital satisfaction. Through laboratory services, management can improve patient satisfaction [27]. Again, laboratory service is seen as an important aspect of prenatal services in the healthcare unit [28]. Therefore, our study hypothesizes that:

H2: The quality of laboratory technicians' services has a positive association with patient satisfaction.

C. Pharmacy services

Pharmacists play a key role in dispensing medicines prescribed by doctors and other health professionals, providing patients with information about medicines and their use, as well as collecting and maintaining information on all medicines, particularly on newly introduced medicines. Pharmacy services in healthcare units contribute to the satisfaction of patients. In a review, high levels of patient satisfaction were observed with pharmacy services [29]. Patient satisfaction is positively influenced by the attitude of pharmacists [30]. In another study, the satisfaction with the overall quality of pharmaceutical services received by participants was positive [31]. Yet again, HIV patients in South-Eastern HIV clinics in Nigeria were highly satisfied with services rendered by the pharmacists [32]. In a study, patients were very satisfied with the service and network quality of their prescription drug plans [33]. Thus, our study hypothesizes that:

H3: The quality of pharmacy services has a positive association with patient satisfaction.

D. Patient satisfaction and patient loyalty

Several studies have shown that satisfaction is the most

studied prerequisite for customer loyalty because they have found a positive correlation between satisfaction and loyalty [34]-[36]. Ramli [37] found that high patient satisfaction has a positive impact on patient loyalty. Zhou, Wan [38] also revealed that satisfaction has a significant positive direct impact on loyalty. Again, Tanford [39] found a positive relationship between patient satisfaction and patient loyalty. Further, satisfaction improves repeat purchases and positive customer word-of-mouth [40]. Hence, our study hypothesizes

H4: Patient satisfaction has a positive association with patient loyalty.

E. Quality of service of medical personnel, patient satisfaction, and patient loyalty

Researchers have determined that quality of service is a prerequisite for patient satisfaction, which in turn is a prerequisite for patient loyalty [41], [42]. When patients perceive low service quality, they tend to switch service providers, which affects profitability. As a result, several studies have shown that quality of service can predict patient satisfaction. Besides, other studies have explored the impact of service quality on patient loyalty. Therefore, the patient's judgment on the quality of service can affect reuse and recommendation. Furthermore, some studies found that service quality can predict patient satisfaction and loyalty [43]-[45]. In most cases, patient satisfaction is the intermediary structure between service quality and loyalty [36], [46]. Hence, our study hypothesizes that:

H5: Patient satisfaction has a positive mediating relationship between the quality of doctor services and patient loyalty.

H6: Patient satisfaction has a positive mediating relationship between the quality of laboratory technicians' services and patient loyalty.

H7: Patient satisfaction has a positive mediating relationship between the quality of pharmacy services and patient loyalty.

F. Conceptual Framework

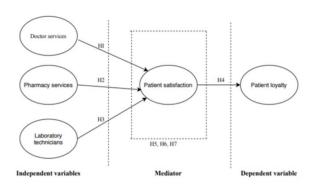


Fig. 1. Conceptual Framework.

The main purpose of this study is to analyze the relationship among the quality of services of medical personnel, patient satisfaction and consequently patient loyalty in ten (10) general hospitals in Ghana. Based on the literature and the postulated hypotheses, the conceptual model of the study has been developed as exhibited in Figure 1. The model depicted in this study states that better and quality health care services rendered by medical personnel (doctors, pharmacists, and laboratory technicians) have a positive effect on patient satisfaction (Hypotheses 1-3 respectively). Again, patient satisfaction has a positive impact on patient loyalty (Hypothesis 4). Furthermore, patient satisfaction also mediates the relationship between the quality of services of the medical personnel and patient loyalty (Hypotheses 5-7). The hypothesized study model is therefore presented in Fig. 1.

III. METHODOLOGY

A. Sample and data collection procedure

A quantitative study was designed to assess the relationship between the quality of service of medical personnel, patient satisfaction, and patient loyalty constructs. It was conducted in the outpatient department in ten (10) general hospitals in Ghana. The study used self- administered questionnaires for primary data collection from the participants. The questionnaire was divided into two parts. The first part contained demographic information and the second part contained information on the quality of service of medical personnel (the doctor services, pharmacy services, and laboratory technicians' services), patient satisfaction and patient loyalty. The random sampling technique was adopted for this study. To protect patient privacy and encourage the free expression of patient opinions, information such as patient name, address or diagnosis were not included in the study. An explanatory note describing the study to respondents was placed at the beginning of the questionnaire. Again, the participation of the patients was voluntary. Out of the 3000 questionnaires distributed, 2372 were completed which represents a response rate of about 79%.

B. Measures

The questionnaire for this study contained five constructs. The measure for doctor services (DS) consisted of 13 items adapted from Gasquet et al. (2004). Pharmacy services (PH) included 7 items from Traverso et al. (2007) and laboratory technicians' services (LT) had 9 items garnered from literature. Patient satisfaction (PS) consisted of 15 items adapted from the Picker questionnaire (Barrio-Cantalejo et al., 2009) and patient loyalty (PL) contained 2 items. Apart from the demographics, all items were measured using a 5point Likert scale. The demographic characteristics of the research participants included gender, age, and education. With gender, the majority part of the participants were females (51%). With age, many of them were in the 30-40 year group. With education, the larger part of participants had high school education (38%). Below are the graphical representations of the sample used.

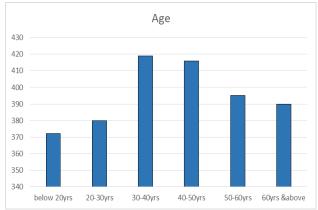


Fig. 2. Descriptive (Age).

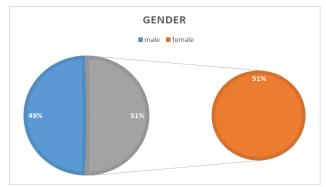


Fig. 3. Descriptive (Gender).

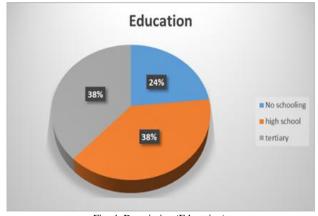


Fig. 4. Descriptive (Education).

C. Reliability test

We assessed the reliability of data using the Cronbach's alpha. The results of the reliability test is presented in Table I. The results indicates that each of the constructs reliably measured the variables.

TABLE I: RELIABILITY STATISTICS

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Description	Cronbach's Alpha	Number of items				
Doctor services	0.837	13				
Pharmacy services	0.876	7				
Laboratory technicians	0.935	9				
Patient satisfaction	0.877	15				
Patient loyalty	0.807	2				
Overall questionnaire reliability	0.897	46				

D. Data Analysis Approach

The statistical tools employed to calculate the descriptive, measurement model, structural model, and multi-group analysis were the SPSS 25 and AMOS 23 software. This helped to assess the predictive power of our proposed conceptual model in assessing patient satisfaction and patient loyalty. We adopted Ogunmokun, Eluwole [50] two-step approach. First, the measurement model was tested to ensure that the indicator variables represented respective latent variables. Second, the structural model was tested by examining the path associations among constructs in our proposed model.

In our study, doctor services, pharmacy services, laboratory technicians' services, patient satisfaction, and patient loyalty all contained multiple measurement items. We, therefore, adopted principal component analysis to extract the items to avoid measurement errors caused by multiple items within the same latent variable. Table 1 shows the goodness of fit indices and their threshold. From Table I, our model was confirmed as an excellent fit between the data and the model itself in testing the relationship between all constructs within the structural model.

TABLE II: GOODNESS FIT TEST AND INDEXES

Goodness Fit Index	Abbreviation Measured		Threshold
Root Mean Square Error of Approximation	RMSEA	0.045	<0.05
Normal Fit Index	NFI	0.924	> 0.09
Comparative Fitness Index	CFI	0.961	> 0.09
Incremental Fitness Index	IFI	0.962	> 0.09
Relative Fit Index	RFI	0.909	> 0.09
Tucker ewis Index	TLI	0.953	> 0.09
Goodness of Fit Index	GFI	0.943	> 0.09
Adjusted Goodness of Fit Index	AGFI	0.924	> 0.09
Root Mean Square Residual	RMSR	0.042	< 0.05

Source: AMOS generated from field data

From Table II, each of the fitness indices compared to their threshold performed better, validating the fitness of the model in predicting patient loyalty.

IV. RESEARCH RESULTS

A. Structural Equation Model and Hypothesis Testing

Our study assessed the structural model after testing for the model fit. Figure 2 indicates the results of the structural model analysis. Observably, Fig. 2 shows the path coefficient along with their significant levels. In our interpretation of the path coefficient, we adopted Lomax and Schumacher [51] who posits a 3-point classification of output namely; below 0.30 = moderate effect, 0.30 to 0.60 = strong effect and above0.60= strong effect.

Hypothesis 1 proposed that the quality of doctor services will have a positive association with patient satisfaction. Hypothesis 2 also proposed that the quality of pharmacy services will have a positive association with patient satisfaction. Again, Hypothesis 3 proposed that the quality of laboratory technicians' services will have a positive association with patient satisfaction. Our path analysis confirmed a positive direct association with H1 (path coefficient = 0.48, p<0.01) H2 (path coefficient = .36, p<0.01) and H3 (path coefficient =0.42, p<0.01) respectively. This implies that the quality of doctor services, pharmacy services, and laboratory technicians' services has a positive association with patient satisfaction. Thus, hypotheses 1, 2 and 3 were all supported.

H4 hypothesized that patient satisfaction has a positive impact on patient loyalty. The results showed a strong positive impact on patient loyalty (path coefficient =0.47, p<.01) which is supportive of the model's predictive power.

Hypothesis 5, 6 and 7 proposed that the quality of doctor services, pharmacy services, and laboratory technicians' services has a positive impact on patient loyalty as mediated by patient satisfaction. From the results, H5 (path coefficient =0.63, p<0.01), H6 (path coefficient =0.57, p<0.01) and H7 (path coefficient =0.82, p<0.01) had a strong positive effect on patient loyalty as mediated by patient satisfaction. Thus, H5, H6, and H7 were all supported.

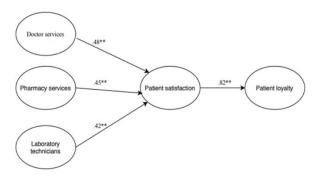


Fig. 5. Path Analysis.

TABLE 3: PATH ANALYSIS ON DIRECT, INDIRECT AND TOTAL EFFECTS

	Variable relation	Direct effects	Indirect effects	Total effect	Hypothesis support
H1	DS – PS	0.48	-	0.48	Yes
H2	PH – PS	0.45	-	0.45	Yes
H3	LT-PS	0.42	-	0.42	Yes
H4	PS-PL	0.82	-	0.82	Yes
H5	DS-PS-PL	-	0.39	0.39	Yes
H6	$\mathrm{PH}-\mathrm{PS}-\mathrm{PL}$	-	0.36	0.36	Yes
H7	LT-PS-PL	-	0.32	0.32	Yes

V. DISCUSSION

Patient satisfaction has become a core mandate for almost every health institutions as there has been an increase in competition. This competition has driven these institutions to carve a niche for themselves to ensure survival and or sustainability. Over the years, patient satisfaction alone has not been enough, retaining them has become of paramount interest to them. Thus, health institutions are putting in strategies to find out the ways they can satisfy these patients and retain them.

Researchers, on the other hand, have gone out of their way to investigate the factors that lead to patients being satisfied and further keep them loyal. Thus literature abounds on service quality, patient satisfaction, and patient loyalty. Many of these studies have been conducted in emerging, developing and developed countries and also in different facets of health.

The main focus of this paper is to assess the relationship between the quality of service of medical personnel, patient satisfaction and patient loyalty in Ghana. The quality of services of medical personnel specifically doctors, pharmacists and laboratory technicians were used to predict patient loyalty via the mediating influence of patient satisfaction.

Our study investigated the association of the quality of service with patient satisfaction. The results proved that the quality of doctor services has a positive association with patient satisfaction. The doctor-patient relationship is essential to patient satisfaction with health-care services [52]. Patients expect some potentials from their doctors such as their availability, tolerance, their ability to diagnose and physically examine them, answering their numerous questions and thus allaying their fears, providing treatment among others [53], [54]. When most or almost their expectations of doctors are met, they become highly satisfied.

Again, the quality of pharmacy services has a positive association with patient satisfaction. This finding is consistent with some studies [55]-[57] which reported a high level of patient satisfaction with the quality of pharmacy services.

Likewise, the quality of service of laboratory technicians has a positive association with patient satisfaction. Patients are satisfied with the services of laboratory technicians when they are available to perform the necessary tests, provide laboratory results timely and possess a warm and friendly attitude. Studies confirm this finding [58], [59].

This points to the fact that if medical personnel render quality services, patients will be highly satisfied. None of the miscellaneous in the health sector have helped in the treatment of an illness, it is the medical personnel who are at the forefront to make sure patient gets treated or cured of their ailment. So the better the quality of service they render, the higher the satisfaction of their patient.

We also hypothesized that patient satisfaction will have a positive impact on patient loyalty. This was proven. When patients are satisfied with the quality of services rendered to them, they tend to become loyal both to the medical personal and the health institution as a whole [38], [60], [61].

Further, our results indicated that the quality of services rendered by the medical personnel has a positive association with patient loyalty via the mediating influence of patient satisfaction. Satisfied patients tend to be loyal to the medical personnel. Loyalty is the foundation of any institution. Research shows that high service quality leads to patient loyalty [62]-[65]. Medical units should, therefore, aim to gain loyalty as; It is easier to retain loyal patients than to find new ones, because patients will recommend them to others, thus saving the marketing cost of finding new patients; It helps hospital management identify mistakes they can improve to satisfy patients. Hence, medical units must meet patients' expectations and leave them with positive experiences because the loss of a patient equals a decrease in profits.

VI. POLICY IMPLICATIONS

Every human has the basic right of access to good health and it is the health sector of every country which ensures this

apart from the individual's effort. Individuals visit health units with expectations and anticipate that these expectations be met. When their expectations are met, they become satisfied and vice versa. Thus, health centers are compelled to find strategies that will sustain them in this competitive era. Our research, therefore, has the potential to help hospital administrators and managers to prevent or reduce this phenomenon (patient satisfaction and loyalty) in the health sector in Ghana. As such to ensure patients are highly satisfied, professional and qualified medical personnel (doctors, pharmacists, and laboratory technicians) should be employed. Again, they should be well trained to cooperate among themselves and interact well with patients. The hospital administration should implement regular training programs that will equip the medical personnel with the appropriate and related knowledge and skills which will help them attend better to patients to ensure their satisfaction and earn their loyalty. Further, the medical personnel should put up a warm, empathetic and courteous attitude when relating with patients. Again, they should be provided with efficient equipment to reduce the stress and burden of this medical personnel in their bid to treat these patients. State-level interventions should be directed towards strengthening public-sector health services.

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