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TOTAL QUALITY MANAGEMENT: A MEDIATING FACTOR IN THE RELATIONSHIP BETWEEN CUSTOMER EXPECTATIONS AND SATISFACTION

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ABSTRACT

Patient satisfaction is a useful metric for evaluating service quality in healthcare organizations. This study examined total quality management as a factor mediating the relationship between customer expectations and satisfaction. A self-administered questionnaire was distributed to inpatients undergoing treatment at a tertiary-level hospital in Vietnam during April 2018. A confirmatory factor analysis was performed using AMOS 25.0 (The Statistical Package for the Social Sciences version 25.0) software to determine the relationships among the latent variables of the proposed model. Customer expectations had a significant effect on total quality management and customer satisfaction, while total quality management had a positive influence on satisfaction. Thus, total quality management plays a mediating role in customer expectations and satisfaction. This study has significant implications for service organizations, indicating that patient expectations and service quality should be considered when aiming to increase customer satisfaction.

JEL: I110, M310

KEYWORDS: Total Quality Management, Customer Expectations, Customer Satisfaction

INTRODUCTION

In this paper, we investigate total quality management (TQM) as a mediating factor between patient expectations and satisfaction. The study focuses on the key factors that should be considered when aiming to improve the quality of services offered by service organizations, including process, interaction, and environmental quality. Customer satisfaction functions as a useful tool for measuring the quality of service provided by healthcare organizations (Jamaluddin and Ruswanti, 2017). Therefore, to increase customer satisfaction, service organizations should endeavor to improve the quality of the services that they provide. Service quality contributes to customer satisfaction, and thus the establishment of loyalty (Mosahab, Mahamad and Ramayah, 2010).

The concept of TQM was developed between 1970 and 1993, and initially went by several different names—including inspection quality control (IQC), statistical process control (SPC), total quality control (TQC), and company-wide quality control (CWQC)—before being finally established as TQM in the 1980s (Juran, Godfrey, Hoogstoel and Schilling, 1998, and Aized, 2012). Several programs have been developed to measure TQM in the service industry, including Six Sigma (Aized, 2012) and Reengineering (Aized, 2012), as well as standards including ISO 9000 (Juran et al., 1998, and Aized, 2012, and ISO 9000, 2015), ISO 9001 (ISO 9001, 2015), and ISO 10001 (ISO 10001, 2007). These standards have assisted service organizations and industries worldwide in improving their management quality, and numerous companies have implemented TQM with the aim of developing and improving their businesses (Salter, 1993). Most of the literature on TQM focuses on organizational implementation details.

In the context of the service industry, TQM evolved over several phases focusing variously on product quality, product process quality, service quality, service process quality, business planning, strategic quality planning, and integrated strategic quality planning (Juran et al., 1998, and ISO 9000, 2015, and ISO 9001, 2015). During these stages, TQM was improved by focusing on customer satisfaction (ISO 10001, 2007), which is a useful indicator of whether the service quality of service organizations meets their customers' expectations (Kotler and Keller, 2016). Researchers have shown that measurements and evaluations of satisfaction levels may also serve as metrics for a provider's service quality (Lee and Kim, 2017, and Joung, Kim, Yuan and Huffman, 2011, and Pekkaya, Imamoglu and Koca, 2017). Perceived service quality and customer expectation are antecedent factors for customer satisfaction (Almsalam, 2014).

The healthcare sector is part of the service industry, and customers demand high-quality services (Graffigna Barello, Riva and Bosio, 2014, and Consuela-Madalina, Lorin and Iuliana- Raluca, 2018, and Spiridon, Gheorghe and Purcarea, 2018). The service process in this sector focuses on the interaction between patients and healthcare staff (Spath, 2009), and any misjudgment or error on the part of healthcare staff can have fatal consequences for the patient. In the US, 98,000 people die annually as a result of medical errors (Kohn, Corrigan and Donaldson, 1999). Similarly, medical errors have been identified as the leading cause of death in US healthcare institutions, prompting researchers to suggest that a major shift towards healthcare quality is necessary (Oyebode, 2013). Thus, measurement of service quality is increasingly considered a critical factor in service organizations (Lee and Kim, 2017, and Agyapong, Afi and Kwateng, 2018, and Mosahab et al., 2010). Patient satisfaction is a useful tool for measuring the quality of service provided by service organizations (Pekkaya et al., 2017 and Cho, Lee, Kim, Lee and Choi, 2004). Most of the published literature focuses on perceived quality and satisfaction with services, while our study considers the impact of customer expectations and satisfaction on TQM by service organizations.

Our study examines an integrated model in which TQM plays a mediating role between patient expectation and patient satisfaction. In our model, TQM is a combination of three factors: process, interaction, and environmental quality. Patient expectation factors include aspects of service quality such as tangibility, reliability, and responsiveness. Patient satisfaction measures service quality. These factors significantly contribute to our understanding of the elements of service quality that influence customer satisfaction.

The remainder of the paper is organized as follows: in the next section, we present the related literature and outline the scope of this study. We then describe our data and methodology and discuss the findings. In the final section, we make our concluding comments.

LITERATURE REVIEW

Total quality management (TQM) is best considered as a management system for customer-focused organizations that engages all employees in a process of continual improvement (ISO 9001, 2015). The key aspects of service quality include tangibility, reliability, responsiveness, assurance, and empathy. Tangibility refers to a sense of physical space in relation to services, facilities, equipment, personnel, and communication. Reliability denotes the organization's ability to deliver a safe and reliable service. Responsiveness constitutes employees' willingness to cooperate with and assist the client. Empathy manifests in employees' ability to understand the client's mood and feelings. Assurance denotes the ability of a company to instill a sense of competence and confidence in their clients (Khanli, Daneshmandi and Choobineh, 2014, and Zarei, Arab, Froushani, Rashidian and Tabatabaei, 2012). These aspects of service focus on customer satisfaction with products and services (ISO 9000, 2015). Customer satisfaction can be improved by meeting customers' expectations regarding various aspects of service (Khanli et al., 2014). Thus, service organizations should improve the quality of their services to increase customer satisfaction (Lei and Jolibert, 2012). Researchers have determined five key factors, i.e., process quality, interaction quality, environmental quality, cost, trust, and overall satisfaction (Zarei, Daneshkohan, Khabiri and Arab, 2015a, and Zarei, Daneshkohan, Pouragha, Marzban and Arab, 2015b).

In Vietnam, the majority of public hospitals provide treatment to patients who hold health insurance cards and so are not obliged to pay for their own healthcare, with the exception of a small number of diagnoses and treatments that require specialized technology. Most public hospitals have inadequate medical equipment and outdated facilities, and consequently their process, interaction, and environmental quality fall short of professional standards. Additionally, overcrowding in hospitals often results in unreliable and unsafe diagnostic and treatment practices. We selected three factors—process, interaction, and environmental quality—as appropriate indicators of research hospital quality in Vietnam, based on a sample size of about 500 participants and in accordance with the factor loading of the model.

Expectations are often related to satisfaction (Marimon, Gil-Domenech and Bastida, 2019), and there is a clear relationship between perceived service quality and expectations of service quality (Nadi et al., 2016, and Khanli et al., 2014, and Marimon et al., 2019). When the perceived service quality falls below the expected level, consumers are disappointed (Kotler and Keller, 2016). Improvement of the service quality thus contributes significantly to the fulfillment of expectations and customer satisfaction (Marimon et al., 2019). Wezel, Bos and Prahl (2015) demonstrated that customer satisfaction can predict customer expectations of care outcomes. Perceived service quality depends on how well a consumer's expectations match their actual experience (Khanli et al., 2014, and Aghamolaei et al., 2014). Previous research has identified five dimensions of service quality—tangibility, reliability, responsiveness, assurance, and empathy—that have a bearing on patient expectation (Khanli et al., 2014, and Aghamolaei et al., 2014, and Zarei et al., 2012).

As discussed above, the research target in this study was public hospitals in Vietnam. Vietnam's public hospitals show relatively poor tangibility, in terms of the physical space in which services are delivered, as well as poor facilities, equipment, personnel proficiency, and communication. Moreover, with regard to responsiveness, employees' willingness to cooperate with and assist patients is often hindered by insufficient skills, and their ability to reliably deliver quality service is poor. We included three factors associated with expectation—tangibility, reliability, and responsiveness—in our model, based on the sample size and factor loading.

In the healthcare industry, patient satisfaction is an important metric by which healthcare services are selected, and service quality should meet customer expectations. In addition, customer satisfaction is a useful metric for measuring the quality of healthcare organizations (Marimon et al., 2019). Customers evaluate their satisfaction with an organization by comparing their actual experience with their expectations. Nadi et al. (2016) observed a gap between customer expectations and the perceived quality of the service actually received, where customers' expectations often exceed their actual experience (Khanli et al., 2014). The perceived quality of the service has been shown to be correlated with satisfaction and loyalty (Lei and Jolibert, 2012), and customer satisfaction leads to positive word-of-mouth communication (Kitapci, Akdogan and Dortyol, 2014). Astuti and Nagase (2014) proved that customer satisfaction is a mediator role between relationship marketing and loyalty.

Service quality management teams are under increasing pressure to ensure that services are customer-focused and of the highest possible quality (Juran et al., 1998). Studies measuring service quality from the user's perspective revealed that customer expectations exceed their actual experience with respect to all aspects of service quality (Khanli et al., 2014, and Al Fraihi and Latif, 2016). In other words, a gap is consistently seen between customer expectations and the actual quality of the service delivered, such that customer expectations regarding quality of healthcare are often unmet (Rezaei, Hajizadeh, Zandian, Fathi and Nouri, 2018, and Dopeykar et al., 2018). However, just as expectations and perceptions are constantly evolving, so too are the measures taken to improve service quality, where expectations drive changes in the quality standards set for products and services. Against this background, the following hypothesis is proposed:

H1: Patient expectation has a positive effect on total quality management.

Prudencio and Mamede (2018) demonstrated that expectations are based on personal beliefs about the nature and quality of the service sought. Satisfaction corresponds to service quality and whether the customer's expectations are met. Positive word-of-mouth communication and the client's intention to continue using a service organization are the main indicators of customer satisfaction (Kitapci et al., 2014, and Gu, Yang, Li, Jain and Liang, 2018). There are significant correlations among customer expectations, perceived service quality, customer satisfaction, positive word-of-mouth communication, and loyalty (Gu et al., 2018, and Pevec and Pisnik, 2018). Against this background, the following hypothesis is proposed:

H2: Patient expectation has a positive influence on patient satisfaction.

In the healthcare industry, customer satisfaction is a key metric of service quality and value (Farley et al., 2014). Patient satisfaction is based on the patient's perceptions of the quality of care delivered by the healthcare organization (ISO 10001, 2007). Studies have shown that aspects of total quality management may affect perceived service quality, including process, interaction, and environmental quality, as well as cost and trust. These factors are showing continual improvements, leading to increased customer satisfaction (Zarei et al., 2015a, and Zarei et al., 2015b). Service quality can be improved according to an evaluation process wherein customers compare their expectations with their perceptions of the quality of the service actually received (Khanli et al., 2014). Against this background, the third hypothesis of this study is as follows:

H3: Total quality management has a positive influence on patient satisfaction.

DATA AND METHODOLOGY

Prior to the data collection, staff members were recruited as research assistants, to collect the data. The staff were trained for one day on how to collect the data, the purpose of the study, how each item of the questionnaire avoids biasing the respondents, and confirmation of completeness. After consent had been obtained from the participants, who signed participant information sheets and consent forms, data were collected by a self-administered questionnaire. After participants had completed the questionnaire, the research assistants confirmed that everything had been completed as required.

This study was conducted in April 2018. The target population consisted of inpatients at a tertiary-level hospital in Hanoi, Vietnam. The sample size required for this study (N = 500) was determined based on the recommendations of Wolf et al. (2013). On average, 2,500 inpatients per day utilize 39 clinical departments specializing in cancer treatment at this hospital. Participants were selected from inpatient lists compiled by each department using a simple random sampling method; approximately 20% of all inpatients were recruited. The study included inpatients aged >18 years who were treated in April 2018. In total, 550 participants were recruited to this study to account for incomplete questionnaires, which were compiled as a separate data set.

The data were gathered via a self-administered questionnaire that comprised two main parts. The first part concerned sociodemographic factors and included questions regarding age, sex, marital status, educational level, occupation, and method of paying hospital fees. The second part included 29 questions related to total quality management (TQM), patient expectation (PE), and patient satisfaction (PS), with answers given on a Likert scale that ranged from 1 to 5. The TQM factor was evaluated by 12 items, including 4 items on process quality (TQM1–TQM4), 5 pertaining to interaction quality (TQM5–TQM9), and 3 concerning environment quality (TQM10–TQM12). These items were devised based on the SERVPERF questionnaire developed by Zarei et al. (2015a) and Zarei et al. (2015b), and modified for compatibility with the research hospital context. The PE factor was evaluated via 14 items, including 5 items on tangibility (PE13–PE17),

5 on reliability (PE18–PE22), and 4 on responsiveness (PE23–PE26). Finally, the PS factor was evaluated via three items (PS27–PS29).

Data analysis was performed to generate descriptive statistics on sociodemographic characteristics (frequencies and percentages) using the Statistical Package for the Social Sciences (SPSS) version 25.0. The data were analyzed via a two-step approach involving a measurement model and a structural model. The measurement model shows the underlying structure of the latent variables in a theoretical model. The structural model shows the causal and correlational links among latent variables in a theoretical model. Confirmatory factor analysis (CFA) was performed along with structural equation modeling (SEM) to test the validity of the model using the AMOS 25.0 program (SPSS Inc.).

RESULTS

A Likert scale ranging from strongly agree (5) to strongly disagree (1) was used to capture the responses to all the study items. Cronbach's alpha coefficients were calculated to assess the construct reliability and validity of the questionnaire using SPSS (ver. 25.0). Construct reliability describes the degree to which a set of indicators consistently and stably reflect a given construct.

The Cronbach's alpha value of the total quality management (TQM) factor was between 0.823 and 0.896, that of patient expectation (PE) was between 0.939 and 0.955, and that of patient satisfaction (PS) was 0.792 (Table 1). The alpha coefficients for all latent variables exceeded the cut-off reliability value of 0.70, showing the reliability and adequate internal consistency of the questionnaire. Of the 29 original items, 27 were retained, with two omitted to ensure sufficient reliability of the instrument.

Table 1: Reliability Statistics

Constructs	Items	Cronbach's Alpha
Total Quality Management (TQM)		
Process quality	4	0.896
Interaction quality	5	0.890
Environment quality	3	0.823
Patient Expectation (PE)		
Tangibility	5	0.942
Reliability	3	0.955
Responsiveness	4	0.939
Patient Satisfaction (PS)	3	0.792

This table shows the alpha coefficients, which exceeded the reliability threshold of 0.70, confirming the reliability and adequate internal consistency of the scales.

Confirmatory factor analysis (CFA) can be used to evaluate the fit of an SEM model (Hair Jr, Black, Babin and Anderson, 2014). Each variable was analyzed based on CFA to assess the construction and correct assignment of variables. Our study's model was assessed in terms of standardized regression weights, modification indices, and standardized residuals for pairs of items (Hair Jr et al., 2014). The results are presented in Table 2.

In Table 2, the standardized coefficients of all items ranged from 0.63 to 0.93, thus exceeding the required threshold of 0.5. The average variance extracted (AVE) values were between 0.63 and 0.75, thus exceeding the cut-off of 0.50, and thereby indicating that a large proportion of the variance was explained by our constructs. The AVE exceeded the squared correlations between any pair of constructs, suggesting high

discriminant validity (Hair Jr et al., 2014). The composite reliability (CR) values for all constructs were between 0.79 and 0.97, thus exceeding the cut-off value of 0.70 required for adequate internal consistency. The overall model fit was therefore satisfactory, and all scales met the reliability and validity requirements.

Table 2: Confirmatory Factor Analysis Results

Construct Measures	Standardized Coefficients	Average Variance Extracted (AVE)	Composite Reliability (CR)
Total Quality Management (TQM)		0.631	0.911
TQM1<---TQM	0.849		
TQM2<---TQM	0.777		
TQM3<---TQM	0.801		
TQM4<---TQM	0.848		
TQM5<---TQM	0.839		
TQM11<---TQM	0.632		
Patient Expectation (PE)		0.753	0.965
PE16<---PE	0.753		
PE17<---PE	0.786		
PE20<---PE	0.880		
PE21<---PE	0.911		
PE22<---PE	0.928		
PE23<---PE	0.871		
PE24<---PE	0.886		
PE25<---PE	0.885		
PE26<---PE	0.892		
Patient Satisfaction (PS)		0.646	0.785
PS27<---PS	0.798		
PS28<---PS	0.809		

The CFA results used to evaluate the fit of the SEM model. The model was assessed in terms of standardized regression weights, modification indices, and standardized residuals for pairs of items. The standardized coefficients were required to exceed a threshold of 0.5. The CR values thus met the cut-off value of 0.70 for adequate internal consistency. The AVE values evaluated in terms of the cut-off of 0.50.

Goodness-of-fit measures of the model were assessed based on indexes including goodness-of-fit (GFI), normalized fit index [NFI], root means squared error of approximation (RMSEA), comparative fit index [CFI], and Tucker-Lewis index [TLI], (Hair Jr et al., 2014). In addition, the ratio of $\chi 2$ to the degrees of freedom (Chi-square/df) value was supporting the validity of the model. The $\chi 2$ test is known to be sensitive to sample size, and several widely used goodness-of-fit (GFI) indices demonstrated that the confirmatory factor model. The fit indices of the research model are presented in Table 3.

Table 3: Goodness-of-fit Measures of the Model

Goodness-of-fit	Index	Value	Range	Accepted
Absolute fit	Chi-square	295.904		
	DF	112		
	Chi-square/DF	2.642	Less than 5	Accepted
	GFI	0.938	>0.90	Accepted
	RMSEA	0.056	0.05- 0.08	Accepted
	RMR	0.020	Close to zero	Accepted
Incremental fit	NFI	0.964	>0.90	Accepted
	TLI	0.973	>0.90	Accepted
	CFI	0.977	>0.90	Accepted
Parsimony fit	AGFI	0.915	>0.90	Accepted

Goodness-of-fit of the model. The χ^2 test is known to be sensitive to sample size, and several widely used goodness-of-fit indices were used: GFI [cut-off = 0.85], normalized fit index (NFI) [requirement = value of 0–1], root mean squared error of approximation (RMSEA) [requirement = value from 0.05–0.08), comparative fit index [CFI] and Tucker-Lewis index [TLI] [cut-off = 0.9].

As in Table 3, the Chi-square/df value was 2.642. The indexes had the following values: [GFI] = 0.938 (cut-off = 0.85), [NFI] = 0.964 (requirement = value of 0–1), [RMSEA] = 0.056 (requirement = value of 0.05–0.08), [CFI] = 0.977, and [TLI] = 0.973 (cut-off = 0.9) (Hair Jr et al., 2014). Thus, the research model was considered to be suitable for application in practice.

The hypotheses of this study were assessed based on the path coefficient with standardized coefficients in terms of the statistical significance (requirement = value less than 0.05) of the impacting factors. The standardized coefficients indicate the direction of the effect. The hypotheses of this study are listed in Table 4.

Table 4: Hypothesis Test Results

Hypothesis	Path	Standardized Coefficients	Sig.	Results
H1	PE---> TQM	0.409	***	Accepted
H2	PE--- > PS	0.130	0.004	Accepted
H3	TQM---> PS	0.635	***	Accepted

*Table shows hypothesis test results. Hypotheses were evaluated by standardized coefficients and path coefficients with significance (sig.) less than 0.05. Symbol *** represents (sig. = 0.001). Acronyms are total quality management (TQM), patient expectation (PE), and patient satisfaction (PS).*

Hypothesis H1: Patient expectation (PE) has a positive effect on total quality management (TQM). The path coefficient (PE--->TQM) for H1 was statistically significant (0.409; p = 0.001) (Table 4). This result shows that PE had a positive effect on TQM. Thus, the hypothesis was accepted.

The items in the questionnaire concerning PE related to the following aspects of service: tangibility (5 items; PE13–PE17), reliability (5 items; PE18-PE22), and responsiveness (4 items; PE23-PE26). Our results revealed that PE had a significant influence on TQM ($p < 0.05$). It is clear that improving TQM will in turn improve PE, which corroborates the findings of previous studies. Similarly, Javed and Ilyas (2018) observed that customer expectations were strongly relate to service quality, in terms of empathy and responsiveness in particular. Meanwhile, other studies reported a gap between customer expectations and their perceptions of the actual quality of the service received (Dopeykar et al., 2018, and Rezaei et al., 2018).

Hypothesis H2: Patient expectation (PE) has a positive influence on patient satisfaction (PS). The path coefficient (PE--->PS) for H2 was statistically significant (0.130; p = 0.004) (Table 4), confirming that PE has a positive influence on PS. Thus, the hypothesis was accepted.

Our findings indicate that PE has a clear association with PS. Indubitably, healthcare firms can improve TQM, and thus maintain user satisfaction, by improving their management of client expectations. Customer expectations of service quality constitute a key factor in customer satisfaction. Previous studies found that client expectations regarding various aspects of service quality significantly influence their satisfaction (Javed and Ilyas, 2018). Customer expectations have a considerable effect on client satisfaction, which can lead to positive word-of-mouth communication and increased repurchase intentions (Gu et al., 2018, and Kitapci et al., 2014). Moreover, other studies indicated that customer expectations mediate the relationship between perceived quality and satisfaction (Marimon et al., 2019). These findings indicate that managers can improve service quality, and thereby ensure client satisfaction and loyalty, by reference to customer expectations.

Hypothesis H3: Total quality management (TQM) has a positive impact on patient satisfaction (PS). The path coefficient (TQM---> PS) for H3 was statistically significant (0.635; p = 0.001) (Table 4). This result indicates that TQM has a significant effect on PS. Thus, the hypothesis was accepted.

Three aspects of service quality—process quality, interaction quality, and environment quality—were assessed in terms of customer satisfaction. The results indicated a significant relationship between TQM and PS ($p < 0.05$). Previous studies have similarly reported that service quality influences customer satisfaction considerably (Eivazzadeh, Berglund, Larsson, Fiedler and Anderberg, 2018, and Hsieh, Tsai, Chih and Lin, 2015, and Gu et al., 2018). Moreover, customer expectations may be used as a measure of the service quality of service organizations (Gu et al., 2018). Additionally, repurchase intention has been found to be affected by user satisfaction with services (Kitapci et al., 2014), while service quality itself may also affect the decision to repurchase independent of client satisfaction (Hsieh et al., 2015).

CONCLUDING COMMENTS

The purpose of this study was to examine whether total quality management (TQM) plays a mediating role in the relationship between customer expectations and satisfaction. The study was based on a self-administered questionnaire carried out at a tertiary-level hospital in Vietnam in April 2018, with 550 respondents. Of these, 516 respondents returned the questionnaire, and the results were analyzed statistically. The reliability of the variables was checked for internal consistency. We then performed a confirmatory factor analysis (CFA) to confirm the dimensionality and convergent and discriminant validity of the model, and used structural equation modeling (SEM) to test the validity of the proposed model and our hypotheses. Based on our findings, all hypotheses were supported. Customer expectations have a significant effect on TQM and customer satisfaction; TQM has a positive influence on satisfaction; and TQM is a mediating factor in the relationship between customer expectations and satisfaction. Our study revealed that customer expectations and service quality should be considered when attempting to increase customer satisfaction. Indubitably, our research contributes novel data that will be beneficial to the health service industry. The study identified the key factors that should be considered when aiming to improve the quality of the services offered by service organizations, including process, interaction, and environmental quality. Healthcare organizations should focus on managing customer expectations to increase and maintain customer satisfaction.

This study had the following limitations. It only focused on inpatients, so the views of outpatients were not measured. A further study to holistically assess healthcare service quality could provide insights into the experiences of both outpatients and inpatients. The study was conducted in selected public hospitals. Although some characteristics are shared by both public and private hospitals, we could not discriminate the unique features of the two types of entities based on this study. The research focused on two variables (customer expectation and service quality) and their effect on customer satisfaction. However, the study did not investigate the relationship between customer satisfaction and repurchase intention. Additional research could explore the relationship between these two constructs. In future research, it may be useful to investigate these factors in private service organizations. Despite the goodness of fit of the model, we must retest the model on different sample sizes to validate the current findings and provide new insights into this relationship.

APPENDIX

Questionnaire: Total quality management: A mediating factor in customer expectations and customer satisfaction. Your responses will be used solely for research purposes. The information that you provide will help to improve the quality of healthcare services.

Serial No: ……..

Date of completion…….

Please write your response in the blank column or mark the box provided.

1. What is your age? ……years

2. What is your sex?

1.	Male	☐	2.	Female	☐

3. What is your marital status?

1.	Single	☐	2.	Married	☐
3.	Divorced	☐	4.	Widowed	☐

4. What is your educational level?

1.	No schooling	☐	2.	Primary school	☐
3.	Secondary school	☐	4.	High school	☐
5.	Bachelor's degree	☐	6.	Postgraduate degree	☐

5. What is your occupation?

1.	Govt. employee	☐	2.	Non-govt. employee	☐
3.	Unemployed	☐	4.	Agriculture	☐
5.	General labor	☐	6.	Retired	☐

6. Method of paying hospital fees

1.	Insurance	☐	2.	Personal payment	☐

Please place a cross in the box corresponding to the level of your agreement/disagreement with each of the following statement: 1. Very strongly disagree, 2. Strongly disagree, 3. Agree, 4. Strongly agree, 5. Very strongly agree

Total Quality Management (TQM)

	Statement/Item	1	2	3	4	5
Process Quality						
TQM1	Services were provided on time					
TQM2	I was informed when the services would be delivered					
TQM3	Staff were available when needed					
TQM4	Medical and non-medical services were provided promptly					
Interaction Quality						
TQM5	Round-the-clock services were available					
TQM6	Staff were polite and friendly					
TQM7	Staff had my best interests at heart					
TQM8	Staff understood my specific needs					
TQM9	Staff seemed knowledgeable when answering my questions					
Environment Quality						
TQM10	Hospital environment was clean and comfortable					
TQM11	Employees were well dressed and neatly presented					
TQM12	Equipment was up-to-date					

Patient Expectation (PE)

	Statement/Item	1	2	3	4	5
Tangibility						
PE13	I expect the hospital to have a convenient location					
PE14	I expect directions to be clear					
PE15	I expect the wards to be well-designed for easy access and comfort					
PE16	I expect staff to be professional					
PE17	I expect free medicine to be available					
Reliability						
PE18	I expect the admission process to be fast and straightforward					
PE19	I expect staff to respond immediately when called					
PE20	I expect staff to show sincere interest when attending to my problems					
PE21	I expect staff to be reliable in handling my problems					
PE22	I expect the hospital to provide error-free treatment					
Responsiveness						
PE23	I expect admissions staff to be friendly and courteous					
PE24	I expect staff to respond promptly to patient requests					
PE25	I expect to be provided with adequate information about my health condition					
PE26	I expect affordable medicine to be prescribed					

Patient Satisfaction (PS)

	Statement/Item	1	2	3	4	5
PS27	I am satisfied with the results of my treatment					
PS28	The quality of service I received met my expectations					
PS29	I am satisfied with my selection of this hospital to provide me with healthcare					

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