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PATIENTS' PERCEPTIONS ON FACTORS DETERMINING OF TOTAL QUALITY MANAGEMENT (TQM) IMPLEMENTATION INTO BANGLADESHI PUBLIC HOSPITALS USING TECHNOLOGY: AN EMPIRICAL STUDY

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ABSTRACT:

The purpose of this paper is to develop a model that constructs relations amongst TQM practices and patient satisfaction, particularly in the context of Bangladesh public healthcare, through an empirical study. However, the research on the field of TQM practices and its impact on patient satisfaction and hospital performance are available around the world, the implementation of TQM practices is not well established in hospitals in Bangladesh. For closer analysis of its linking, relations amongst individual TQM practices and patient satisfaction as a measure of success was specifically investigated. Asurvey was carried out and 384 responses were obtained from the inpatients receiving medical treatment of 2 tertiaries and 1 secondary-level hospitals using self-administered questionnaire. Contributing to the analysis was a set of 7 TQM constructs. The main factor of data analysis was completed to test hypotheses about individual TQM practices by using multiple regression. Moreover, structural equation modeling (SEM) was used to define relations amongst TQM practices and patient satisfaction. Overall, the findings showed a positive and significant relations amongst the TQM practices and patient satisfaction. The study also showed that top management commitment (TMC) was considered to be the most predominant TQM activities associated with patient satisfaction.

INTRODUCTION

Total Quality Management (TQM) was a commonly used strategy to improve competitiveness with variegated results in the global market(Talib et al. 2013). TQM is an innovative management concept, directedto continually enhancing product value to increase customer satisfaction (Majumdar & Manohar, 2016). Managers and professionals have well embraced it as an

approach to quality improvement(Anil & Satish, 2017). TQM is a description of a company's culture, attitude and organization that seeks to afford its customers with products and services to meet their needs (Talib et al., 2014).
Healthcareis the fastest-growing service organizationsin developed and developing countries (Ahmad et al., 2017). In recent years, several countries have applied TQM principles and practices to address much of the healthcare problems. Quality healthcare service is seen as a way to help meet patients' desires and aspirations. TQM implementation can boost patient satisfaction in a hospital (Baidoun, et. al., 2018). Many Asian and African countries tackled quality problems by effectively following 5S-CQI-TQM approaches (Islam et al., 2016; Rouf et al., 2017).According to Yang (2006), implementing TQM in the healthcare sector is not as effective or smooth as in the manufacturing or service industries. The main issue of the application of TQM is on how to apply this method to the largely different types of activities in the health sector (Hasinet al. 2011).

1.1 Research objectives

The study's general aim was to find out more specifically relation amongst the TQM activities and patient satisfaction. The following explicit objectives were considered to develop the main objective:
RO1: To seek the essential factors that impel successful intervention between the TQM practices and patient satisfaction.
RO2: To survey the influence of TQM practices on patient satisfaction in Bangladeshi hospitals.

LITERATURE REVIEW

Patient satisfaction is one of the most imperative determinants and a central part of the healthcare delivery systems to evaluate hospital services (Oakland 2014). In the healthcare context, Lashgari et al. (2015) measured the effects of TQM implementation on patients' satisfaction and they found that TQM impacts increasing the satisfaction level among patients toward healthcare services provided by hospitals. Similarly, several previous studies on TQM implementation found that implementing TQM leads to increasing the patient satisfaction level within healthcare organizations (Chiarini & Baccarani, 2016; Aburayya et al., 2019). Moreover, patient satisfaction measure provides valuable information to researchers, health care managers and professionals to understand the experience of patients, promote patient compliance with treatment, identify service weaknesses and evaluate the performance of health services . To a large extent, health care institutions in developing countries like Bangladesh seem to pay no attention to the importance of the attitudes of patients with regard to health services. However, recent literature emphasizes the significance of the experience of patients when evaluating the quality of healthcare (Uddin et al. 2016).

1.2 TQM Success Factors

Different studies have shown that Total Quality Management (TQM) is a tactical implement to improve patient satisfaction, reduce costs and healthcare mistakes and deliver timely service(Alolayyan, et al., 2011; Kamra, V. et al. 2016). Based on the previous studies, many researchers have suggested that a large number of factors have a significant relationship with patient satisfaction

in a hospital. Many of them have appeared more frequently than others. Factors are identified in this study which affects TQM in healthcare organizationsare teamwork (TW), training and development (TAD), process management (PM), continuous quality improvement (CQI), resources and competency development (RCD), organizational culture (OC) and top management commitment (TMC) confirm such relationship amongTQM practices and patient satisfaction (PS) (El-Tohamy & Raoush, 2015; Sabella, et.al., 2015; Adjei & Mensah, 2016; HALIS, R. et. al., 2017; Ahmad et al., 2017; Abdulla, 2017; Penggu, et. al., 2018; Nithya, 2018; Alzoubi, et. al., 2019). To understand each TQM factor's relationship with patient satisfaction, the following hypotheses in figure 2 were formulated and will be tested.

1.3 Relationsamongst TQM Practices and Success Indices

Quality assessment is important for an organization's successful management (Demirbaget al. 2006). Several empirical studies have been carried out to determine the relationship between TQM practices and different performance metrics, such as quality performance, customer-related performance, operating performance, employee performance and financial performance, which provide mixed and ambiguous results (Parvadavardini et al. 2016). Survival of a hospital trusts on patient satisfaction(Ashrafun & Uddin, 2011; Al-Shdaifat, 2015), so healthcare organizations should use patient satisfaction to assess success(Hasin et al. 2011).In this study, patient satisfaction dimension was chosen as an indicator of success to assess hospital performance similar to previous studies(Halis R. et al. 2017). TQM's one of its key goals is to boost patient satisfaction (Adjei & Mensah, 2016).

RESEARCH FRAMEWORK AND PROPOSED HYPOTHESIS

It was found in the literature review, in the context of Bangladesh there is no specific research done to define and thoroughly evaluate the application of TQM.Besides, there is no strong outline in previous studies that depicts relationamongstTQM practices and patient satisfaction in healthcare sector. The proposed framework was generated by using the SEM model, in which patient satisfaction functions as a dependent variable and TQM practices as an independent variable shown in Figure 1.

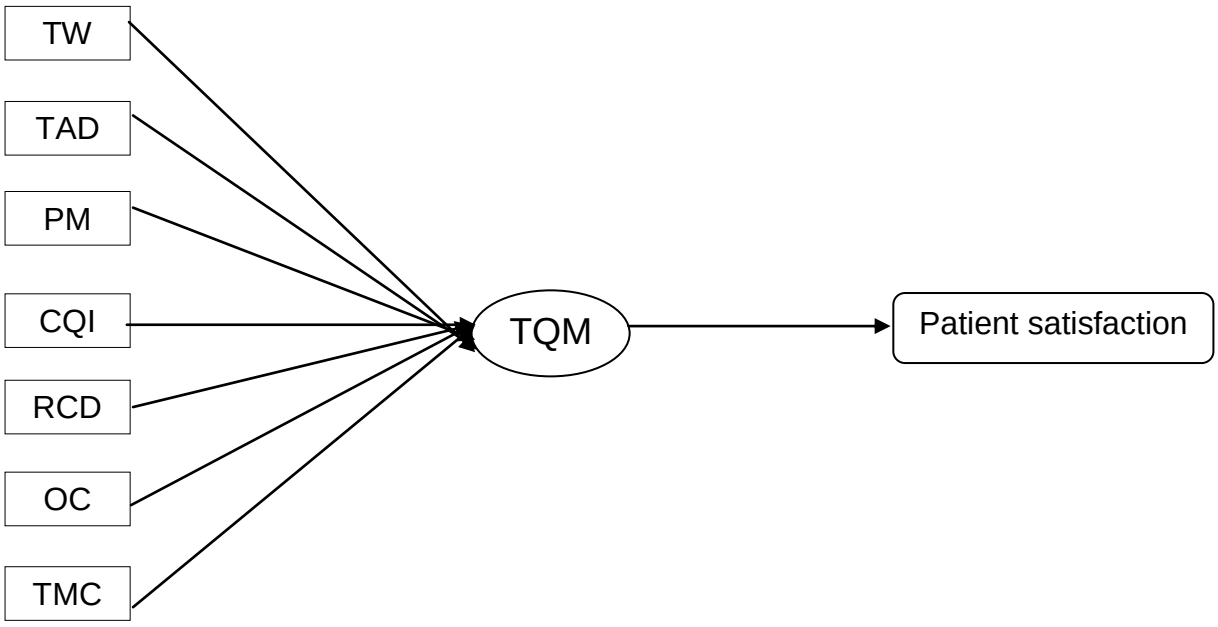

Figure 1. Conceptual framework that reveals relations amongst TQM practices and patient satisfaction.

An empirical analysis was designed by evaluating the relationship between variables to unravel those confusions. The following hypotheses were suggested in directing the progress of the experiments.

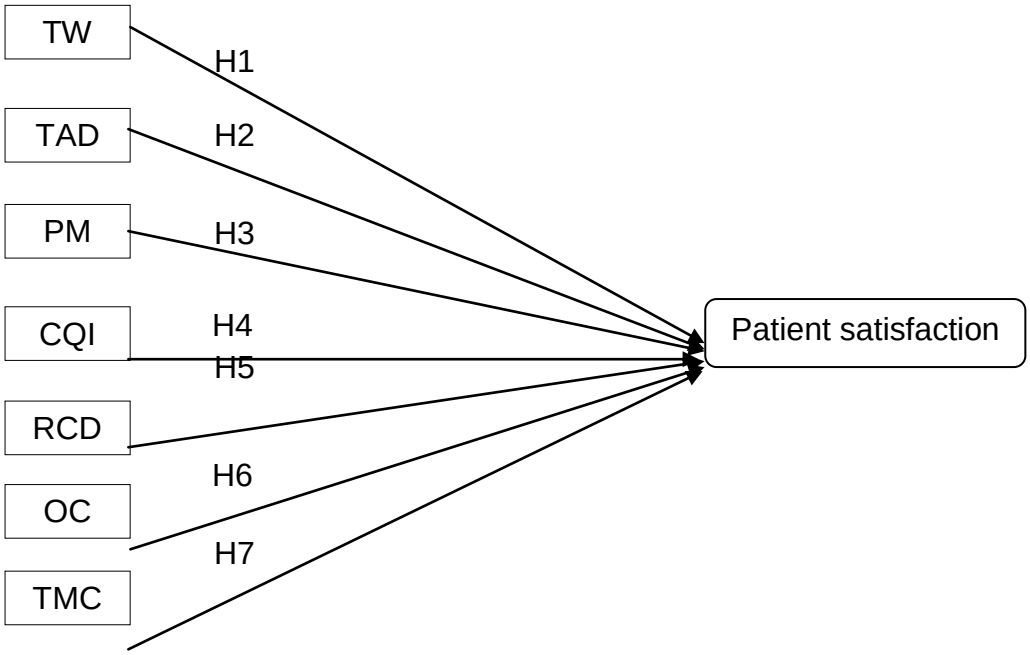

Figure 2. Research hypotheses model.

The following hypotheses were formulated to analyze the effect of the TQM practices individually on patient satisfaction.

H1: Teamwork (TW) is significantly related to patient satisfaction.

H2: Training and Development (TAD) is significantly related to patient satisfaction.

H3: Process Management (PM) is significantly related to patient satisfaction.

H4: Continuous Improvement (CQI) is significantly related to the patient satisfaction.

H5: Resources and Competency Development (RCD) is significantly relatedto patient satisfaction.

H6: Organizational Culture (OC) is significantly related to the patient satisfaction.

H7: Top Management Commitment (TMC) is significantly related to patient satisfaction.

RESEARCH METHODOLOGY

This study adopts a quantitative method and a survey research design to attain the purposes of the research. A survey questionnaire was adopted as the main quantitative tool for collecting data through a self-administered process using the direct approach technique. The questionnaire was designed to determine the level of quality in the targeted hospitals related to TQM dimensions and to identify the causal relationships between TQM and patient satisfaction.

1.4 Instrument Design

In this study an organizedsurvey questionnaire was developed based on the previous TQM literature, namely the studies of Alqasimi, (2017); Sweis et al., (2016); Al-Shdaifat, (2015); and Sabella et al., (2015)were assumed. The instrument has been improved by collaboration with academics and quality specialists. The survey questionnaire is composed of three main parts. The first segment shields thecommon information that the researcher has developed about the respondents and hospitals. The second segment contain of 7 (seven) TQM practices with 33 (thirty-three) items while the third segment contain of 5 (five) items assessing patient satisfaction (Almutairi, 2017; Nguyen & Nagase, 2019) as a whole. A five-point Likert scale ranging from 1(Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly Agree), was used for all the items to secure high statistical variability among survey responses (Saunders *et al*., 2009).

1.5 Data Collection

In this empirical research the sample unit of analysis consisted of Bangladeshi three public hospitals namely Dhaka Medical College Hospital, Mymensing Medical College Hospital, and 250 beds Kishoreganj Sadar (district) Hospital. In this analysis a random sampling method (a probability sampling technique) was used. The population for this research is considered patients who were in-patients within the last one year in these three hospitals during the survey.This study used the form of direct survey as the means of data collection widely used in specific investigation (Zu, 2009; Fotopoulos & Psomas, 2010). The questionnaire was administered via the direct approach method to a total of 590 patients (tertiary and secondary level hospitals). The collection of data is achieved by a visit to hospital areas. A total of 435 patients replied to several follow-ups and personal contacts where 44 of them were not completed all sections of questionnaires accurately. A total number of 391 respondents were given their feedback properly while a total of 384 questionnaires selected for empirical analysis in this study as the sample size is supported by this number.

DATA ANALYSIS

1.6 Normality test

To assess the normal distribution of the data, the value of skewness and kurtosis are within the -1.96 and +1.96 acceptable range. Hair Jr. et al. (2014a) suggests if the degree of skewness and kurtosis is not severe, it is considered as a normally distributed. Analysis indicated that the data was normally distributed in terms of the identification of TQM practices. Skewness and Kurtosis statistics arementioned in Table1.

Table 1. Skewness **and Kurtosis statistic**

Sl. No	Constructs	Skewness	Kurtosis
1	TW	-0.363	-0.727
2	TAD	0.454	-1.400
3	PM	-0.719	0.169
4	CQI	-0.201	-0.863
5	RCD	-0.374	-0.320
6	OC	-0.564	-0.293
7	TMC	-0.626	-0.205
8	PS	-0.272	-0.706

1.7 Reliability and Validity Test for Constructs

Initially, the reliability analysis was performed by measuring the Cronbach's alpha for each scale to test the internal accuracy of TQM constructs and the patient satisfaction individually. The reliability coefficients of the items used in the study reach the Annually and Bernstein (1994) suggested minimum threshold level of 0,70. Table 2 shows the resultof the Cronbach's alpha value ranges between 0.749 and 0.958, signifying high scale reliability.Validity is concerned with how well the measures describe the definition, while reliability is linked to the measure's accuracy. A test has validity of content and there is general agreement between subjects and researchers that the instrument has things covering all areas of the assessed variable evaluated(Hair, et al.,1998). In addition, in previous studies nearly every item used in the instrument was checked for content validity.

Table 2. Cronbach's **alpha (α) for distinct variables.**

Sl. No	Constructs	No. of items	Cronbach's alpha (α)
1	TW	5	0.958
2	TAD	4	0.923
3	PM	5	0.780
4	CQI	5	0.869
5	RCD	3	0.845
6	OC	5	0.926
7	TMC	5	0.749
8	PS	5	0.783

Construct validity was achieved through the exploratory factor analysis using the SPSS 25.0 program to classify specific components with varimax rotation to recognize related items underlying a construct. In this analysis, items which had a factor loading above 0.50 on their respective constructs were retained as proposed by Hair, et al., (2006). Nonetheless, the homogeneity and appropriateness of the data must be assessed using the Kaiser–Meyer–Olkin (KMO) estimate and Bartlett's sphericity test (BTS) in SPPS, before determining construct validity. The KMO sampling adequacy measure was 0.616, which is greater than 0.60, which suggests moderate intercorrelations while BTS was significant (x^2 = 3684.940, p = .000, <.01). A KMO value

close to 1 implies that factor analysis can produce distinct and accurate constructs while values between 0.5 and 0.7 are intermediate and values between 0.7 and 0.8 are good (Bhat & Rajashekhar, 2009). In addition, the BTS result should be significant. (p <.01).]

1.8 Correlations

Analysis of correlation was carried out to find out the relationship between variables in pairs: TW, TAD, PM, CQI, RCD, OC, TMC, and PS. Table 3 is showing the summarized results.

Table3. Correlations

	TW	TAD	PM	CQI	RCD	OC	TMC	PS
TW	1							
TAD	.679**	1						
	0.000							
PM	.464**	.578**	1					
	0.000	0.000						
CQI	.234**	.165**	.452**	1				
	0.000	0.001	0.000					
RCD	.395**	.299**	.754**	.586**	1			
	0.000	0.000	0.000	0.000				
OC	.381**	.316**	.716**	.491**	.718**	1		
	0.000	0.000	0.000	0.000	0.000			
TMC	.322**	.300**	.736**	.875**	.745**	.780**	1	
	0.000	0.000	0.000	0.000	0.000	0.000		
PS	.373**	.258**	.617**	.889**	.822**	.660**	.854**	1
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

**. Correlation is significant at the 0.01 level (2-tailed).

1.9 Regression Analysis

Analysis of multiple regression is a statistical tool for investigating the relation between a single dependent variable and several independent variables (Hair et al., 1998). This study was carried out to check the hypothesis of the research on whether the relationship between individual TQM practices and patient satisfaction is important.The histogram, scatter plot, and normal residual P-P plot were performed to check the assumptions about normality, homoscedasticity, and linearity. These are shown in Figure 3 and Figure 4 respectively. Table 4 shows the standardized beta coefficients and t values showing the positive relationship between five TQM practices: PM, CQI, RCD, OC, and TMC with the patient satisfaction that substantiates the H3, H4, H5, H6, and H7 hypotheses. No support was given for other H1 and H2 hypotheses.

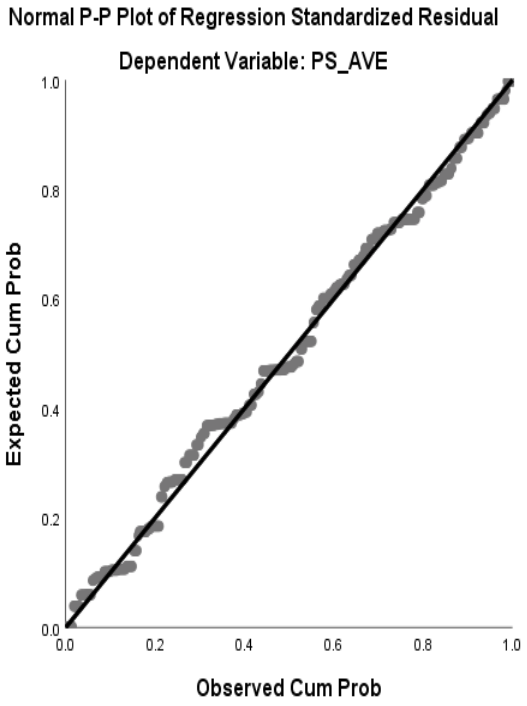

Figure 3. Normal P-P Plot

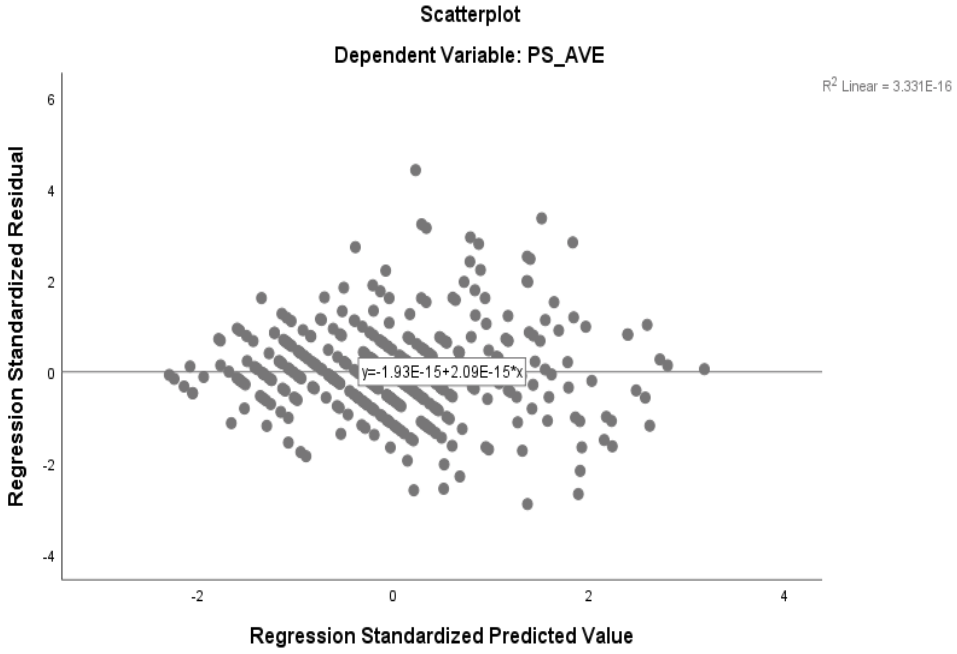

Figure 4. Scatter Plot

DISCUSSION

The key purpose of this section is to find out relationamong TQM practices and patient satisfaction in the Bangladeshi public hospital context. Overall, the result suggested that the TQM practices contribute strongly and substantially to the patients' satisfaction. This finding confirms also several previous

research findings in this area (Kaluarachchi, 2010; Ahmad et al., 2017). Many but not all of the TQM methods are good patient satisfaction predictors. The investigation exposed five TQM practices PM, CQI, RCD, OC, and TMC as the predominant TQM practices in Bangladeshi public hospitals.

Process management (PM) has been found to be significant and linked positively to patient satisfaction. The positive effect of PM on the level of patient satisfaction matched previous findings by Nguyen & Nagase, (2019). Process management relates to how hospital operational performance ensures the use of quality techniques and resources for detecting maintenance, setting standards, efficacy, illegitimate management, giving priority to patient needs, emergency response system, admission procedure, registration method, safety system, clinical care process and ensuring error-free quality efficiency (Talib et al., 2014). This was further complemented by previous research results (Wardhani et al., 2009; Kaluarachchi, 2010; Ahmad et al., 2017).

Table 4. Multiple regression analysis of TQM practices on patient satisfaction

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-0.122	0.050		-2.440	0.015		
	TW	0.018	0.014	0.019	1.261	0.208	0.908	1.101
	TAD	-0.014	0.012	-0.019	-1.144	0.253	0.293	3.412
	PM	0.202	0.031	0.168	6.480	0.000	0.293	3.418
	CQI	1.026	0.032	1.118	32.379	0.000	0.521	1.919
	RCD	0.407	0.020	0.397	20.608	0.000	0.176	5.697
	OC	0.284	0.020	0.329	14.184	0.000	0.191	5.233
	TMC	-0.888	0.057	-0.800	-15.700	0.000	0.843	1.187

a. Predictors: (Constant), TW, TAD, PM, CQI, RCD, OC, TMC

b. Dependent Variable: PS

Continuous quality improvement (CQI) was showed to be significantly positively related to patient satisfaction. This result is consistent with research conducted by Mosadeghrad, (2015); Almutairi, (2017) and Anil & Satish, (2017). Their research found that a strong and notable relationship exists between continuous quality improvement and customer satisfaction through

which business performance can be enhanced. Yang, (2006) also established that continuous improvement affects the process of applying TQM, and that quality management is intended to meet the patient needs.

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.980[a]	0.960	0.959	0.16283	0.960	1280.682	7	376	0.000	1.571

a. Predictors: (Constant), TW, TAD, PM, CQI, RCD, OC, TMC
b. Dependent Variable: PS

Table 6.ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	237.699	7	33.957	1280.682	.000[b]
	Residual	9.97	376	0.027		
	Total	247.669	383			

a. Predictors: (Constant), TW, TAD, PM, CQI, RCD, OC, TMC
b. Dependent Variable: PS

The findings of this research showed that resources and competency development (RCD) have a significant and positive relationship with patient satisfaction. The results obtained are the findings of the study conducted by Roeleejanto et al. (2015). Which stated that one way to maintain patient satisfaction that the competency and work discipline of the employees have significant effects on the application of TQM. Yang (2006) also extensively analyzed the influence of resources and competency development practices on the implementation of TQM within high-tech companies, and the empirical findings of the study showed that competence practices can have significant effects on customer satisfaction.

Teamwork (TW) does not have a significant relationship with patient satisfaction in this research. Respondents in this research might still not give considerable attention to the teamwork of hospital employees. Patients are willing to get proper treatment and better service either it comes from an individual or team. However, a puzzling finding that training and development (TAD) was showed to be significantly negative related to patient satisfaction. TAD is also recognized as a supporting practice for implementing the TQM approach and reflects the ability of the organization to use the tools and techniques for quality management (Wardhani, et al., 2009).

CONCLUSION

The research highlighted the value of introducing TQM practices in healthcare organizations in Bangladesh by showing its positive impacts on patient satisfaction. The study added a model of 7 (seven) TQM constructs and also presented the connection among TQM practices and patient satisfaction.The findings, in answer to the research query, presented statistical evidence on the positive and important relations amongst TQM practices and patient satisfaction. The findings showed that five TQM activities lead in a substantial and supportive way to patient satisfaction.Top Management commitment (TMC) is the most dominant factor with a strong association to patient satisfaction.In addition, the study pointed to the significance of other variables such as PM, CQI, RCD, and OC. In reality, successful application of these TQM strategies will help organizations to make customer satisfaction improvements.The findings of this research showed that teamwork (TW) and training and development (TAD) do not have a significant relationship with patient satisfaction. The results obtained are against the findings of the study conducted by Mosadeghrad, (2015); Almutairi, (2017), Anil & Satish, (2017) and Nguyen &However, participants think proper treatment and better service either it comes from individual or team, developing themselves by training or not to understand is their part. Another probable explanation of this non-significant relationship is the reluctance to maintain these constructs by managers and staff to implement TQM as a new management. Employees should improve the quality through these constructs and cooperation with other members of the organization. The proposed model would allow health care providers to pay more attention to the critical role of top management and staff in initiating, implementing, and progressing TQM stages.

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