

Total Quality Management and Patient Satisfaction in Hospitals: An Empirical Study using Structural Equation Modelling

Nergis Ayoub Wani¹, Dr. Indra Mathur¹, Mushtaq Ahmad Darzi³,

Wani Suhana Ayoub⁴, Dr. Hashim Ahad⁵

¹Department of Home Science, Bhagwant University Ajmer, Rajasthan, ²Department of Commerce and Management studies, University of Kashmir, ³Department of food technology, Islamic University of Science and technology, Awantipora ⁴Post Graduate Department of Oral and Maxilifacial surgery, GDC Srinagar

Abstract

There is a dearth of research that examines the relationship between TQM and patient satisfaction, particularly in developing nations such as India; hence, it is essential to investigate the two elements together. In addition, the findings of this study highlight the importance of investigating the moderating effect that gender plays in the relationship between TQM and patient satisfaction. This inquiry made use of a methodology that was both quantitative and causal in its character throughout its course. This study included a total of 401 questions. Patients in a number of hospitals across Kashmir, which is located under the J&K Union Territory, were given the opportunity to take part in a survey. All of the hypotheses presented in the study are validated by the regression analysis. There is a considerable correlation between TQM and the level of satisfaction experienced by patients. Furthermore, the findings suggest that gender plays a moderating role in the relationship between TQM and patient satisfaction. This indicates that there is a substantial difference, based on gender, in the association between the variables that were studied. In addition, the findings of the ANOVA reveal that there is no difference between the sexes in terms of TQM or patient satisfaction. This body of work holds a significant amount of importance, both conceptually and practically, for members of the academic community and the medical profession.

Keywords: TQM, healthcare, hospitals, service, patient satisfaction.

1. Introduction

Because of the global nature of the economy in the twenty-first century, businesses need to devise strategies that reduce expenses while maintaining or improving product or service quality. One of these opportunities for businesses to build capacity that will allow them to compete successfully in a global market is presented by the use of TQM. In this instance, TQM confers flexibility in a company and a means of assuring quality to its clientele, which are important considerations (Pyzdek & Keller, 2013). The provision of services of the highest possible quality is predicated on upholding continuous health standards and catering to the needs of customers in a manner that is convenient for them (Gronroos, 2001). The healthcare industry, which is a subsector of the service industry, possesses a certain set of features, just like the rest of the service industry's components (Moumtzoglou, 2003). To begin, customers use services in the form of so long as this pattern of consumption remains unchanged. The second benefit is that customers have input on the development of the services, including the nutritional services they pay for. Patients do not have the right to try out the healthcare service before they receive treatment for their condition. Thirdly, the supply of high contact is necessary for the delivery of healthcare treatment. Fourthly services that demand a higher level of human engagement between patients and between patients and staff than the interaction necessary for the purchase of tangible things. It's possible that this will cause patients' emotions and personal feelings to influence their overall level of pleasure and their plans for the future.

Patients base their evaluation of the degree of service quality on observable cues and evidence, nutritional services, quality of food, delivery of food, etc. Patients are, therefore, more able to get information through word-of-mouth communication. It is anticipated that the quality of medical care will contribute, in human beings' day-to-day lives, to the attainment of a higher quality of life. Providing food to patients in healthcare facilities is an integral component of medical care and an important contributor to assisting in the recuperation process (Jonkers, 2001). The most memorable parts of a day for patients are the meals (Kipps & Middleton, 1990). This is to meet their needs and expectations and a sense of fulfilment that attends to their physiological and psychological needs. This signifies that TQM management concerning patient nutrition is vital for overall satisfaction.

However, research between patient satisfaction and TQM is scarce, especially in developing countries like India, which makes it critical to study the two factors together. Moreover, this

work also suggests exploring the moderating role of gender between TQM and patient satisfaction.

2. Literature

2.1 TQM

It is difficult to pinpoint the precise moment when the idea of quality first came into existence. On the other hand, the majority of people regard the emergence of large-scale industrial businesses as the period during which quality or knowledge of quality became more prominent. In essence, businesses were required to provide consumers with a quality assurance guarantee for the things they sold. When the concept of quality was first presented, there was no set timetable for its implementation; nonetheless, the evolution of TQM is quite elaborate (Oakland, 2014). Japan was the country that pioneered the implementation of the method first. On the other hand, the United States of America is credited with creating the theoretical concepts that underpin its use. In the middle of the 1980s, a wave of Total Quality Management began to gain prominence. On the other hand, the majority of the concepts that form the basis of the TQM principles were developed much earlier, particularly in the 1950s and 1970s (Oakland, 2014). Around the middle of the 1990s, it became abundantly evident that TQM played an important role in management. It is important to note that corporations began viewing the techniques as fundamental to the development of competitive advantage. TQM was initially used in a number of different regions across the globe; however, its use was far more prevalent in the industrialised nations. The benefits of increased productivity provided by TQM were the primary factor that led to its adoption. For instance, it cut down on lead times, lowered the number of defects and reworks, and, as a result, assisted businesses in lowering their operating costs and providing quality goods to the market (Evans & Lindsay, 2017). As a result, businesses started implementing TQM to increase their competitiveness, profits, flexibility, and ability to meet the demands of satisfied consumers (Talib et al., 2016).

There is not one single accepted definition of TQM. Because of this, TQM can be understood in a variety of ways, but one of the definitions that are consistently one of the most popular is Oakland's (2014, p. 30): "An all-encompassing strategy for enhancing competitiveness and adaptability by means of planning, coordinating, and gaining knowledge of every activity, as well as incorporating everyone at every level." TQM guarantees that management will adopt a strategic perspective on quality and will place emphasis on prevention rather than

inspection. In other words, it is a detailed plan for enhancing an organisation's effectiveness by involving all the people engaged in understanding the process. This is done by involving all of the people involved in the process. In general, implementing this strategy will place a greater emphasis on prevention than on inspection. One more essential point to take away from this description is that Total Quality Management places its emphasis on the enhancement of the entire process rather than the individual components that make it up.

The significance of putting quality management techniques into action has received a lot of attention recently (Baidoun et al., 2018). In essence, healthcare facilities want to improve the overall process as well as the quality of the medical services they provide by acquiring more effective management and clinical information systems (Mosadeghrad, 2014). In order to be effective, a system needs to be able to support the ongoing enhancement of product quality, guarantee that available resources are utilised to their full potential, and devise solutions to issues as they arise (Aburayya et al., 2019). In the healthcare industry, implementing TQM has the same fundamental purpose as it does in other industries, such as banking, hotels, advertising, and other fields, which is to enhance performance and increase efficiency (Baidoun et al., 2018). In addition, the implementation of TQM places an emphasis on living up to the requirements outlined by consumers, who, in this context, are patients. The patient must have the impression that the level of medical treatment and services they receive is enough to meet their needs. In addition, the best use of the resources that are available must be demonstrated in order to guarantee the highest quality of treatment for patients (Aburayya et al., 2019). TQM use in the healthcare sector has followed successful pilot studies that proved that the model could function in the healthcare setting.

2.2 Patient Satisfaction

Patient satisfaction is an important topic for all parties involved in the medical (health) care industry, including medical (health) care providers, patients (customers), and other third-party stakeholders in the medical care sector (Ofili, 2014). The vast majority of them are willing to acknowledge that the degree of a patient's contentment can be used as a specific condition for analysing and considering the client's assumptions, which indicate the level of a consumer's satisfaction. A situation known as satisfaction is one that arises as a result of the patient's engagement with the recommendation over a period of time roughly equivalent to that suggested (Al-Abri & Al-Balushi, 2014).

3. Research Methodology

3.1 Research Design

This investigation made use of an approach that was quantitative as well as causal in nature. This investigation utilised a total of 401 questions, all of which were applicable in some manner. Patients in several hospitals in Kashmir, part of the J&K Union Territory, were invited to participate in a survey.

Measures

TQM and patient satisfaction were measured with six items each from the study of Rumman et al. (2021).

Objectives

- To study the influence of TQM on patient satisfaction.
- To study the moderating role of gender between TQM and patient satisfaction.
- To study TQM and patient satisfaction with respect to gender.

3.2 Factor Analysis

Exploratory factor analysis (EFA) from SPSS 25.0 was used to analyse the factor structure because the questionnaire had some small linguistic alterations to reflect the local context. These adjustments were made in order to ensure that the results were accurate. These alterations were made so that they would be appropriate for the regional setting. When we ran Cronbach's alpha to check the reliability of the data, we saw that it had a value that was higher than the 0.60 limits that we had defined (Hair et al., 2006). The Kaiser-Meyer-Olkin (KMO) test of sphericity and Bartlett's test of sphericity (Table 1) both returned results that were greater than the levels that were required, which suggests that the sample size was adequate (0.863 and 10763.068, respectively). All the commonalities values were above 0.40 (Table 2). When considered together, two factors account for 87.2 per cent of the total variation (Table 3). The data set elements had loadings greater than 0.50 (Table 4) (Hair et al., 2006)

Table 1 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.863
Bartlett's Test of Sphericity	Approx. Chi-Square	10763.068
	Df	66
	Sig.	.000

Table 2 Communalities

Items	Initial	Extraction
TQM1	1.000	.843
TQM2	1.000	.939
TQM3	1.000	.849
TQM4	1.000	.883
TQM5	1.000	.838
TQM6	1.000	.935
PS1	1.000	.774
PS2	1.000	.793
PS3	1.000	.913
PS4	1.000	.906
PS5	1.000	.884
PS6	1.000	.912

Extraction Method: Principal Component Analysis.

Table 3 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
	1	7.240	60.331	60.331	7.240	60.331	60.331	5.291	44.094
2	3.229	26.910	87.240	3.229	26.910	87.240	5.178	43.147	87.240
3	.584	4.868	92.109						
4	.256	2.133	94.242						
5	.205	1.704	95.946						
6	.194	1.618	97.564						
7	.149	1.243	98.807						
8	.102	.847	99.654						
9	.021	.172	99.826						
10	.018	.147	99.973						
11	.002	.020	99.993						
12	.001	.007	100.000						

Extraction Method: Principal Component Analysis.

Table 4 Rotated Component Matrix

Items	Component	
	1	2
TQM1	.893	
TQM2	.950	
TQM3	.908	
TQM4	.923	
TQM5	.899	
TQM6	.948	
PS1		.850
PS2		.859
PS3		.938
PS4		.941
PS5		.931
PS6		.938

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

4. Data Analysis

4.1 Respondent Profile

Table 5 Respondent Profile

Variable	Group	Frequency
Gender	Male	226
	Female	175
Education	Secondary	403
Hospital	Public	296
	Private	105
Residence Type	Rural	265
	Urban	136

4.2 Measurement Model

The measurement model depicted in Figure 1 was established as a direct result of the CFA (confirmatory factor analysis) that was carried out in AMOS 22.0. The results demonstrate that the model fit settings used were appropriate.

CMIN/DF= 3.99; CFI = 0.931, GFI= 0.890, NFI =0.919 and RMSEA=0.067

Reliability and Validity

C.R. (composite reliability) ratings of 0.60 or above were used to assess the instrument's level of dependability and consistency (Table 7). AVE (average variance extracted) scores that were larger than 0.50 (Table 7) (Fornell & Larcker, 1981) and standard loadings that were greater than 0.50 were utilised in order to ascertain whether or not convergent validity was present (Table 6). Due to the fact that the AVE square root scores are lower than the correlation coefficient (Fornell & Larcker, 1981), the analysis showed that there is discriminant validity (Table 7).

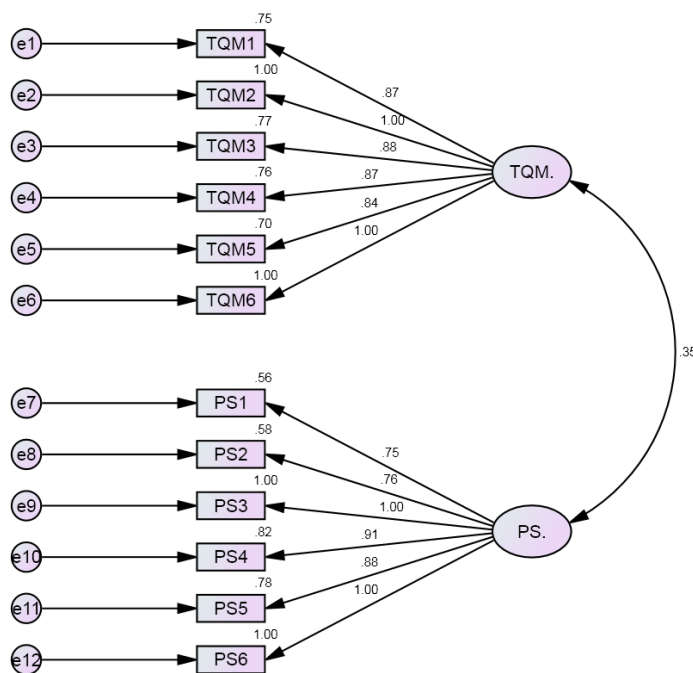


Figure 1 Measurement Model

Source: Author's Own

Table 6 CFA Loadings

Items	Direction	Factor	Estimate
TQM1	<---	TQM.	.869
TQM2	<---	TQM.	.900
TQM3	<---	TQM.	.880
TQM4	<---	TQM.	.870
TQM5	<---	TQM.	.838
TQM6	<---	TQM.	.998
PS1	<---	PS.	.750
PS2	<---	PS.	.764
PS3	<---	PS.	.901
PS4	<---	PS.	.905
PS5	<---	PS.	.885
PS6	<---	PS.	.911

Table 7 Reliability and Validity

Factors	CR	AVE	TQM	PS
TQM	0.919	0.661	0.872	
PS	0.853	0.674	-0.211	0.880

Note1: The values (highlighted) in the above matrix's diagonal are the AVE's square root.

Note: TQM-Total Quality Management; PS-Patient Satisfaction

Source: Author's Own

4.3 Structural Model

The structural model (Figure 2) was used to investigate the relationship that exists between predictors (exogenous factors) and consequent variables. The values of the model fit are not outside the acceptable limits.

CMIN/df=3.67, GFI=0.908, CFI=0.914, RMSEA=0.061, NFI=0.931.

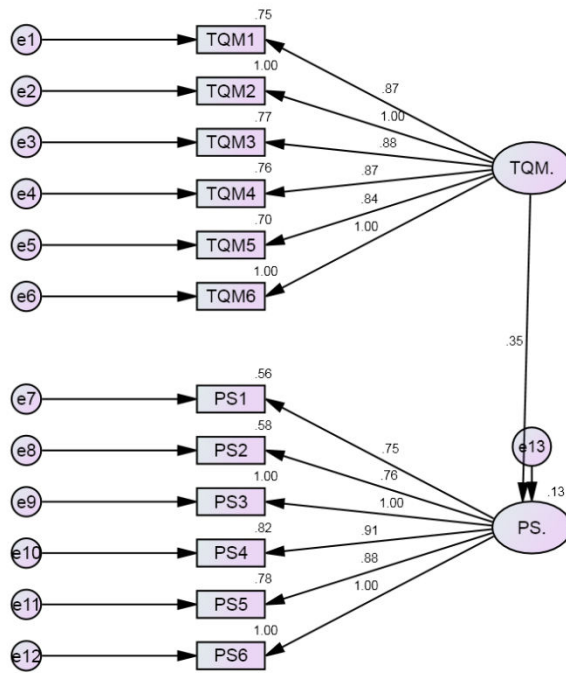


Figure 2 Structural model

Table 8 shows that TQM positively and significantly affects patient satisfaction ($R^2 = .22$).

Table 8 Structural Model Estimates

From	To	Standard (β)	Un-Standard (β)	Error	t-value	P
TQM	Patient Satisfaction	0.35	.296	.042	7.043	***

Note: Source: Author's Own

P=.001

The findings of the moderation analysis are presented in Table 4, which illustrates how gender influences the association between TQM and patient satisfaction.

Table 9 Moderation Results

Dependent Variables	Direction	Independent Variables	Male		Female		z-score
			Estimate	P	Estimate	P	
Patient Satisfaction	<---	TQM	0.310	0.000	0.310	0.000	1.09**

Source: Data compilation by the scholar for the present study

*Note 1: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10*

5.4 ANOVA

A one-way analysis of variance was carried out to investigate the significance of the mean disparity between TQM and patient satisfaction in relation to gender. The findings in Table 10 indicate differences in TQM and patient satisfaction are not caused by differences in gender.

Table 10 ANOVA Test

		Sum of Squares	Df	Mean Square	F	Sig.
TQM	Between Groups	.000	1	.000	.000	1.000
	Within Groups	545.801	399	1.368		
	Total	545.801	400			
PS	Between Groups	.862	1	.862	.661	.417
	Within Groups	520.713	399	1.305		
	Total	521.575	400			

5 Conclusion & Discussions

Regression analysis proves all the hypotheses in the study. TQM has a significant and positive association with patient satisfaction ($\beta=0.35$; $R^2=0.22$). In addition, results show that gender acts as a moderator between TQM and patient satisfaction. This means that the association between the study variables varies significantly for gender. Also, ANOVA results show that TQM and patient satisfaction do not vary across gender. This body of work has a great deal of significance, theoretically and practically, for academics and medical practitioners. There are a variety of approaches that administrators can use when working with patients. The goal should be to treat patients with care and empathy in order to enhance their satisfaction with healthcare services such as nutrition and other facilities. They should focus on enhancing service quality and other quality measures (applying hygiene and healthcare standards) in order to improve hospital service.

5.1 Future Research

Patients from hospitals make up the entirety of the sample population; however, other groups may be considered for participation in further studies. In a later study, it is conceivable that the number of participants will be increased to a greater extent. In addition, the scope of the study might be expanded to include other parts of India, such as larger cities and rural areas, as well as other countries. In subsequent studies, other factors must be studied for their potential to function as mediators or moderators of the effects of a particular variable. On the other hand, longitudinal and qualitative research may be able to explain possible cause-and-effect relationships between the study variables and help us understand how they are related to each other.

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