Available online at **www.ijmrhs.com**

ISSN No: 2319-5886

International Journal of Medical Research & Health Sciences, 2019, 8(4): 147-162

TQM Practices and their Effect on Non-financial Performance: An Empirical Study of Pakistani Hospitals

Muhammad Bilal Maqsood[1,2]*, Tahir Saeed[2], Muhammad Ramzan[2], Muhammad Maroof Ajmal[2], Zahid Hussain[3] and Mohammad Al Arab[1]

[1] *King Abdullah International Medical Research Center, King Saud Bin Abdulaziz University for Health Sciences, Ministry of National Guard Health Affairs, Riyadh, Saudi Arabia*

[2] *Department of Management Sciences Preston University Kohat, Islamabad Campus, Pakistan*

[3] *Quality Department, Pakistan Kidney, and Liver Institute and Research Center, Lahore, Pakistan*

**Corresponding e-mail: managerqualityafic@gmail.com*

ABSTRACT

Introduction: *There has been a vigorous change in the healthcare sector with increased patient expectations, technological advancements, and growing competition in the healthcare market. Therefore hospitals have to shift from traditional management approach to more diverse aspects like TQM practices and effective quality management system to augment the performance level. Relationship between TQM practices and performance is multipronged and widely discussed in the literature.* ***Aim:*** *Main purpose of this study was to evaluate the impact of TQM practices on non-financial performance elements of performance in different quality management system settings.* ***Methods:*** *This study used an empirical approach to identify and explain the TQM practices and non-financial performance relationship. A cross-sectional survey was conducted in 5 hospitals from different regions with either Joint Commissioned International (JCI) or ISO 9001 based quality management system. Data were collected from 150 hospital managers between October 2018 and February 2019. Descriptive and inferential statistical analysis was conducted using IBM SPSS 20 version.* ***Results:*** *Finding of the study support that TQM practices have a statistically significant and positive relationship with non-financial performance ($p<0.05$). Result of multiple linear regression analysis shows that TQM practices are a strong predictor of non-financial performance (Beta=0.793, t=15.837, R2=0.629, and p=0.000) and explain 63% variation in the model. TQM practices demonstrate higher overall and individual mean values for JCI accredited hospitals. T-test shows that there is a significant difference ($p<0.05$) in TQM practices between JCI and ISO-based quality management system.* ***Conclusion:*** *It can be inferred from this study that TQM practices have a leading role in the improvement of the non-financial performance of hospitals. Hospital managers at a different level can achieve improved results with effective implementation of identified TQM practices. TQM practices significantly contribute towards individual dimensions as well as an overall improvement in non-financial performance.*

Keywords: TQM practices, Non-financial performance, Healthcare, Quality, Implementation

INTRODUCTION

Total quality management practices are considered as a driving force to augment organizational quality performance. Ever changing and complex arena of healthcare has embarked upon challenges of continuous improvement and higher performance standards in recent years with effective deployment of TQM practices. Leadership and organizational cultures are considered as important factors that affect the relationship between quality and performance. The purpose of this study was to examine the impact of TQM practices on non-financial performance aspects of organizational performance. There are a few gaps in the existing literature that will be addressed in the current study. There has been less emphasized on assessing the effect of multiple moderators in the studies to evaluate the impact of total quality management practices on organizational performance. There is seldom substantial research conducted in the healthcare quality management filed in Pakistan as there is a lack of a specific program in the healthcare sector

especially in public hospital for continuous quality improvement [1]. Top management in Pakistani healthcare is still showing reluctance to introduce TQM practices and quality standards offer by international organizations [2].

This study highlights the aspects of quality performance that are influenced by total quality management practices. These practices are in vogue in Pakistani hospitals where formal healthcare quality system is implemented and management focuses on quality improvement. Different studies conducted in the hospitals in Pakistan with regards to service quality highlight that there is lack of commitment of staff and management to provide excellent services that leads to deterioration of performance of hospitals [3,4].

There is hardly any research work available on Pakistani hospitals with regard to organizational performance in perspective of Total Quality Management practices with moderating effect of leadership and culture. This study will highlight areas like extent of QMS implemetation, level of non-financial performance and effect of leadership support and prevailing culture in broader spectrum.

Literature Review

Healthcare system in Pakistan: Healthcare in Pakistan has emerged from the British healthcare system that was established on a conventional British system in the late 90s when this region was called sub-continent. Majority of healthcare services are provided by the public sector and the private hospital also contribute to an extent.

Healthcare setup is mainly divided into primary, secondary and tertiary care. Primary and secondary care setups cover from small scale to medium scale services from village level to district level under the public health sector. These include dispensaries, basic health units, rural health center, maternity and child health center, TB centers, tehsil, and district headquarter hospitals. Tertiary healthcare services are provided by both public and private hospitals in urban areas. Healthcare services at all level are under the jurisdiction of provincial governments after the 18th amendment in the constitution. There are 2 types of the hospital under the federal government, ministry of defense hospitals, ministry of national health and affiliated hospitals. The private sector includes tertiary care hospitals, specialty hospitals, polyclinics, GP clinics, NGOs and others [5].

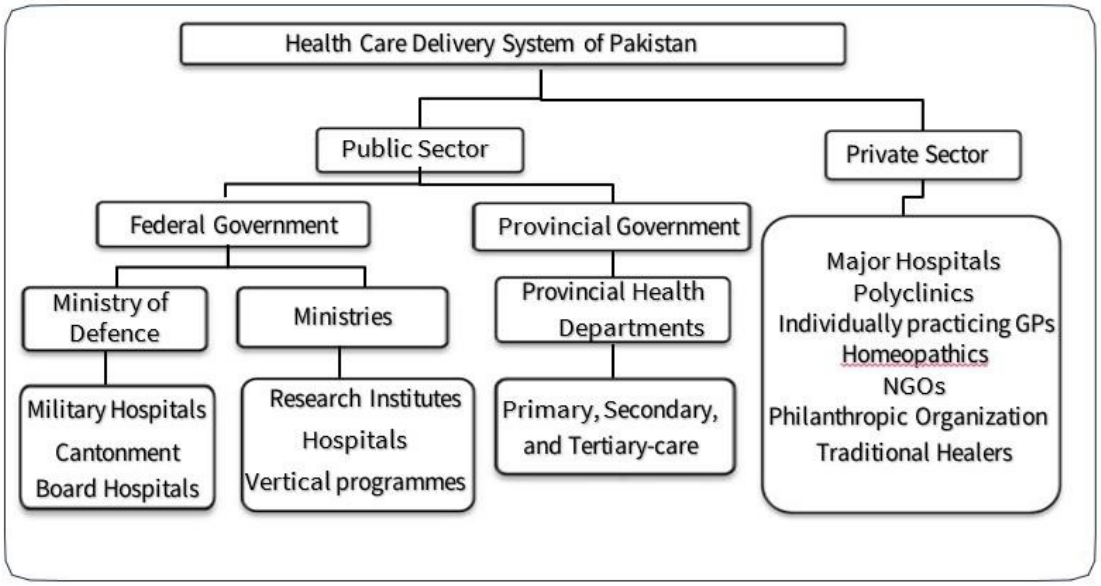

Figure 1 Healthcare delivery system in Pakistan

A report issued by the Ministry of Finance, Pakistan described that health expenditure was 1.12% of total GDP spending of 2017-2018 that was 0.11% more as compared to 0.91% in 2016-2017. However, this percentage of spending is too low as compared to developed countries. According to this report in 2017, there were 2,08,007 registered doctors, 20463 registered dentists, 1,03,777 registered nurses. It further says that the current ratio is 957 persons per doctor 9,730 people per dentist [6].

According to health resource guide: Pakistan (2018), there are 1201 public sector hospitals, 5518 basic health units (BHUs), 676 rural health centers (RHCs), 731 maternal and child health centers and 347 TB centers. There are total 1300 hospitals in Pakistan out of which 99 are private sector hospitals. A total number of available hospitals beds are 123394, availability of bed is 6 per 10,000 population [7].

Provincial health governance and management system in Pakistan is not under the umbrella of an independent national health regulatory body. That is why the federal government has no functional or quality check on provincial hospitals. The only province of Punjab has recently formed Punjab Healthcare Commission to monitor minimum healthcare quality requirements. One major cause of lack of governance is that people who are involved in healthcare policy planning and implementation have no dedicated qualification and there is no experienced advisory body. That is why there is a huge gap in expected and final outcomes of healthcare policies and strategic goals [8]. In the private sector, there is more awareness about clinical governance, quality improvement, and patient safety domains. Majority of private hospitals are implementing ISO 9001, while few have JCI based quality management system.

Total quality management practices: Earlier studies on quality management practices described that these practices are concerned with the process through which organizational activities should perform for the customer expectations using statistical tools, techniques, following international standards, employees training, and other continuous improvement procedures [9,10].

Total quality management (TQM) is considered as a well-defined, extensive, and structured approach to organizational management that helps in improving the quality of products and services through continuous superiorities and improvements in response to continuous feedback. Experts of management consider the TQM practices as a catalyst for the organization and its performance [11]. TQM practices are for the satisfaction of customers and clients so improvements and continuous support for these services help in creating profitability and non-visible grooming of the organizations [12].

TQM is considered a multi-dimensional construct. TQM has various definitions according to different settings and applicability. TQM likewise can be explained with several dimensions or practices according to product or service offered. Different researchers have utilized distinct TQM practices for analyzing the effect on financial or non-financial performance [13]. TQM practices identified and examined in various research studies are process management, training and development, the role of the quality department, supplier quality management, employee relations, benchmarking, product/service design, strategic quality planning, customer focus, and continuous improvement [14]. This study has focused on 5 TQM practices; teamwork and involvement, continuous improvement, process management, benchmarking and customer focus.

Organizational performance: Organizational performance is the indicator which reflects the achievement of organizational objectives. Organizational performance can be defined as "output of the firm's operations or achievements of firm's goals". Organizational mission and vision are the key aspects that define the course of organizational commitment and performance. Literature suggested that financial, as well as non-financial organizational performance, depend on TQM practices in many organizations [15,16]. Financial performance includes profitability, return on investment, increase the share price, sales growth, etc. whereas non-financial performance includes product/service quality, market effectiveness, customer satisfaction, employees learning and growth, business process improvement, etc.

Non-financial performance: In the services sector especially in public sector non-financial performance would be better to discuss owing to its approach and applicability [17]. In recent years organizations are emphasizing on performance measurement through non-financial elements like customer loyalty and employee satisfaction. This approach has multiple benefits; a manager can look into business progress well before the depiction of the financial aspect, employees can have insight on peculiar actions to achieve strategic goals, and shareholders can have a better idea of overall organizational performance.

Moreover in the last decade numbers of companies have been measuring employee satisfaction, customer loyalty and

other soft performance areas that are not financial but all these elements are believed to affect profitability ultimately [18]. A study on Malaysian organizations showed that financial performance is directly related to 2 non-financial measures, quality performance, and business performance. It also recommends that organizations should give consideration to non-financial aspects to improve overall organizational performance [19]. There are various methods used to evaluate the non-financial performance in healthcare e.g. 6 sigma, Delphi technique, various TQM models, balance scorecard, etc. This study used Balance Scorecard (BSC) for non-financial performance evaluation. Balance scorecard was introduced by Kaplan and Norton in 1992 and it has a blend of financial and non-financial elements of the organizational performance [20]. It covers the following aspects of the performance:

- Customer focus
- Internal business process
- Learning and growth
- Financial aspect

BSC methodology is emphasized on the effective performance measurement and evaluate the organizational strategy through balancing non-financial and financial aspects of the organizations [21]. The balanced scorecard has been previously used in a healthcare setting to measure non-inancial performance [22-25].

Relationship between TQM Practices and Non-financial Performance

According to Kumar, et al., process improvement and increased product and service quality are results of effective implementation of TQM practices. Another study findings suggest that by successfully adopting and implementing TQM practices organizational performance results depict remarkable improvement [26,27].

A study on TQM practices and quality performance of Malaysian ISO 9001:2000 certified manufacturing organizations revealed that TQM practices are partially correlated with the quality performance [28]. A research conducted on services and manufacturing organizations in Malaysia found that there is strong statistical evidence of a direct relationship between quality certiication and non-financial performance [19]. A study was conducted by an ISO 9000 certified organizations in Taiwan to evaluate the relationship between 6 QM practices and non-financial performance from a quality perspective. It's findings conclude that customer focus was most dominant practice associated with performance whereas the other 5 practices had a less strong relationship with the performance [29].

Prajogo and Sohal used structured equation modeling (SEM) technique to study the multidimensional approach of TQM and their linkage with organization performance. They collected empirical data form 194 Australian organizations for their research. The finding of the study suggests that various TQM dimensions have a relationship with 2 aspects of organizational performance; quality performance and innovation performance [30].

Theoretical framework and research questions: A theoretical framework was conceived based on the above literature review and a research model have been proposed to study the individual and collective practice level of identified five TQM practices in Pakistani hospitals with implementation of the formal quality management system. It also examined the relationships between TQM practices and non-financial performance by measuring it with 3 non-financial elements of balance scorecard e.g. customer perspective, learning and growth and internal business processes.

The research model proposed that high level of TQM practices application may yield in higher non-financial performance of Pakistani hospitals. Independent variable in this theoretical research framework was TQM practices and the dependent variable was non-financial performance respectively. The proposed TQM research framework is given in Figure 2.

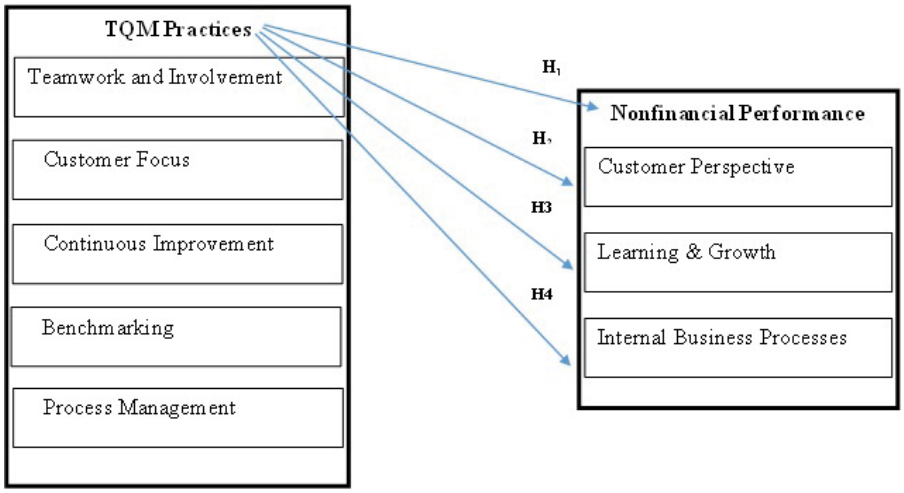

Figure 2 Theoretical framework

The main objective of this study was to find the relationship between TQM practices and non-financial performance. Other objectives included examining variation in TQM practices in different quality systems and to study the impact of individual TQM practices on non-financial performance in Pakistani hospitals.

Research questions and hypotheses:

Four questions were articulated for this study from the literature review. These are given as below:

- RQ1: Do TQM practices have an impact on the non-financial performance of the hospital?
- RQ2: Do TQM practices affect the customer perspective of non-financial performance?
- RQ3: Do TQM practices affect the leaning and growth factor of non-financial performance?
- RQ4: Do TQM practices affect the internal business processes aspect of non-financial performance?

Hence, an extensive review of the literature proposes the extent of implementation of 5 identified TQM practices in Pakistani hospitals. Although, there is a number of TQM practices used in the health sector, however above described 5 practices are frequently used and implemented for better results and improved performance. This proposition leads to the following hypotheses:

- H1: TQM practices have a statistically significant impact on non-financial performance in Pakistani hospitals
- H2: TQM practices have a statistically significant impact on customer perspective in Pakistani hospitals
- H3: TQM practices have a positive impact on learning and growth in Pakistani hospitals
- H4: TQM practices have a positive impact on internal business processes in Pakistani hospitals

PATIENTS AND METHODS

Study Design

This study employed a cross-sectional survey and quantitative design was followed.

Study Population and Sampling

The target population for this study included Pakistani hospitals with formal quality management system implementation in different regions. Currently, there are 2 quality management systems being effectively used in Pakistan for the hospital sector; one is Joint Commission International (JCI) accreditation based while other is ISO 9001:2015 certification based. There was a total of 5 hospitals selected for this data collection purpose. First JCI accredited hospital from Lahore city of central Punjab, second ISO 9001 certified hospital from Rawalpindi city north Punjab, third JCI accredited hospital from federal capital Islamabad, fourth ISO 9001 hospital from Peshawar city of Khyber-Pakhtunkhwa and fifth JCI accredited hospital from Karachi city of Sindh.

Data were collected through a self-administered online survey questionnaire from 30 respondents of each hospital working at various management positions (low, middle and top). There were 10 samples collected from each of 3 management level. Total of 150 questionnaires was acquired from above mentioned 5 hospitals after repeated email and telephonic reminders. This study used a tailored design method to maximize the survey responses according to plan [31].

Study Instrument

A structured questionnaire was developed to validate the hypothesis. This electronic survey consisted of 3 parts; demographics, TQM practices, and non-financial performance. It was accompanied by a cover letter that describes a brief overview of the study purpose and confidentiality of information.

The demographic data included age, gender, years of experience, designation, qualification, hospital name, and QMS type. The second part consisted of 25 items within 5 constructs of TQM practices. These constructs include teamwork and involvement (5 items), customer focus (5 items), continuous improvement (5 items), process management (5 items), benchmarking (5 items). The third part consisted of 27 items within 3 constructs of nonfinancial performance. These constructs include customer perspective (9 items), learning and growth (9 items) and internal business processes (9 items). In this study, TQM practices are independent variable whereas non-financial performance is the dependent variable. All constructs of TQM practices and non-financial performance are measured using five points Likert scale ranging from strongly disagree (1) to strongly agree (5).

Data Analysis

Data analysis was done using SPSS version 21 software. Cronbach-alpha scale was used to estimate the reliability of the scales. Correlation and regression analysis were conducted to analyze the hypotheses of the study.

Validity and reliability of the instrument: The validity of the instrument was conducted through content validity and construct validity. Content validity was performed through extensive review and evaluation of tool content by subject matter experts in management sciences. It was also considered that the tool should maintain totalitarian while avoiding ambiguity and duplication of questions.

RESULTS

Reliability analysis was performed through Cronbach alpha to check the internal consistency. Results showed that all sub-constructs and 2 main constructs were reliable. The lowest reliability coefficient for sub-constructs was 0.717 for benchmarking and maximum for 0.801 for learning and growth. The threshold value is 0.70. Overall reliability coefficient results for TQM practices and non-financial performance were 0.926 and 0.921 respectively.

Table 1 Reliability analysis

Construct	Cronbach's alpha	Number of items
Teamwork and involvement	0.727	5
Customer focus	0.750	5
Continuous improvement	0.760	5
Process management	0.762	5
Benchmarking	0.717	5
Overall total quality management	0.926	25
Customer perspective	0.780	9
Learning and growth	0.815	9
Internal business processes	0.801	9
Overall non-financial performance	0.921	27

Descriptive Analysis of Demographic Variables

This study included 150 participants from 5 Pakistani hospitals have implemented a quality management system. There were 30 participants selected from each hospital. They were further subdivided into 3 management categories low, middle and top and 10 participants were selected from each level.

Table 2 Hospital-wise data

Hospital Name	Management level				Percentage (%)
	Low	Middle	Top	Total	
	Frequency				
Aga Khan University Hospital	10	10	10	30	20%
Shaukat Khanum Memorial Cancer Hospital and Research Center	10	10	10	30	20%
Shifa International Hospital	10	10	10	30	20%
IIMCT-Pakistan Railway Hospital	10	10	10	30	20%
North West General Hospital and Research Center	10	10	10	30	20%
Total	50	50	50	150	100%

All study participants were Pakistani nationals belonging to different regions with diverse demographic characteristic. Aga Khan University Hospital is situated in Karachi city that is provincial capital of Sindh province. Shaukat Khanum Memorial Cancer Hospital and Research Center are placed in Lahore city that is the capital of Punjab province. IIMCT-Pakistan Railway Hospital is in the northern region of Punjab province. North West General Hospital and Research Center are situated in Peshawar city that is the capital of Khyber Pakhtunkhwa province.

About 67% were male and 33% were female participants. Within the age group of 21-30 years, there were 10% of participants. The largest ratio of participants was 43% in the age group of 31-40 years. Participants between the age group of 41-50 years were 32% and between 51-60 years were 13% whereas there were only around 3% of participants in the age group of over 60 years. Years of experienced of participants ranged from 10% (1-5 years), 25% (6-10 years), 15% (11-15 years), 7% (16-20 years), 5% (21-25 years), 35% (26-30 years) and only 3% had experience over 30 years. According to the designation, there were 15% admin/quality officers, 5% admin/quality specialists, 14% admin/quality coordinators, 9% admin/quality supervisor, 15% assistant manager, 9% manager, 13% assistant director, 12% associate director and only 4% were directors. The education level of respondents ranged from 27% of graduates, 65% masters, and only 8% doctorate level. In 3 hospitals quality management system was based on the standard of Joint commission international (JCI) whereas in the other 2 hospitals it was based ISO 9001 standard.

Table 3 Demographic data

Variable	Frequency	Percentage
Nationality		
Pakistan	150	100.00%
Gender		
Male	100	66.70%
Female	50	33.30%
Total	150	100.00%
Age (Years)		
21-30	15	10.00%
31-40	64	42.60%
41-50	48	32.00%
51-60	19	12.70%
>60	4	2.70%
Total	150	100.00%
Years of experience (Years)		
1-5	15	10.00%
6-10	53	24.70%
11-15	37	15.30%
16-20	23	7.30%
21-25	11	4.70%
26-30	7	35.30%
>30	4	2.70%
Total	150	100.00%
Designation		
Admin/Quality Officer	22	14.67%
Admin/Quality Specialist	7	4.67%

Admin/Quality Coordinator	21	14.00%
Admin/Quality Supervisor	14	9.33%
Assistant Manager	22	14.67%
Manager	14	9.33%
Assistant Director	26	17.33%
Associate Director	18	12.00%
Director	6	4.00%
Total	150	100.00%
Education Level		
Bachelor Degree	40	26.70%
Master Degree	98	65.30%
Doctorate Degree	12	8.00%
Total	150	100.00%
Quality Accreditation/Certification		
ISO 9001:2015	60	40.00%
JCI	90	60.00%
Total	150	100.00%

Correlation Analysis

Correlation analysis was conducted among dimensions of 2 main concepts of study; TQM and non-financial performance. Table 4 describes the correlation among variable constructs. All dimensions of TQM were significantly and positively correlated with individual dimensions of non-financial performance. Customer focus presented maximum correlation (r=0.703) with a customer perspective. Teamwork and continuous improvement also showed a higher correlation with customer focus (r=0.674) and (r=0.689). Benchmarking and process management was more correlated with internal business processes (r=0.684) as compared to other aspects of non-financial performance. The results further showed that overall TQM practices are highly correlated with non-financial performance (r=0.793).

Table 4 Correlation analysis

TQM Practices	**Non-financial Performance**		
	Customer perspective	**Learning and growth**	**Internal business processes**
Teamwork and involvement	0.674	0.662	0.661
	0.000	0.000	0.000
	150.000	150.000	150.000
Customer focus	0.703	0.629	0.606
	0.000	0.000	0.000
	150.000	150.000	150.000
Continuous improvement	0.689	0.629	0.599
	0.000	0.000	0.000
	150.000	150.000	150.000
Process management	0.632	0.622	0.637
	0.000	0.000	0.000
	150.000	150.000	150.000
Benchmarking	0.609	0.609	0.684
	0.000	0.000	0.000
	150.000	150.000	150.000
Overall TQM practices	0.793		
	0.000		
	150.000		

T-Test Analysis

Mean differences between TQM practices and non-financial performance of hospitals following ISO 9001 or JCI standard based quality management system (QMS) were calculated. Overall TQM practices mean score for JCI accredited hospitals was higher (M=4.20, SD=0.39) than ISO 9001 certified hospitals (M=3.70, SD=0.26). Mean score for 3 elements of non-financial performance was higher for JCI accredited hospitals (M=4.21, SD=0.4) as

compare to ISO 9001 certified hospitals (M=3.79, SD=0.27). Table 5 shows the results of group statistics for the dependant and independent variables based on a quality management system applied in Pakistani hospitals

Table 5 Group statistics based on QMS

Variables	Quality standard	N	Mean	Std. deviation	Std. error mean
TQM practices	ISO 9001:2015	60	3.70	0.26	0.0334
	JCI	90	4.20	0.39	0.0409
Nonfinancial performance	ISO 9001:2015	60	3.79	0.27	0.0349
	JCI	90	4.21	0.40	0.0424

Independent sample T-test was employed to see the significant differences between the mean values of TQM practices and non-financial performance in ISO certified and JCI accredited hospitals. Mean scores of overall TQM practices showed that there is a statistically significant difference ($t=-9.478$, $p<0.05$) between ISO 9001 certified and JCI accredited hospitals. Similarly, T-test further showed that the mean values of non-financial performance have a statistically significant difference between ISO 9001 certified and JCI accredited hospitals ($t=-7.072$, $p<0.05$). Table 6 explains the results of the independent sample T-test results.

Table 6 Independent sample T-test based on QMS

Variables		Levene's test for equality of variances		T-test for equality of means		
		F	Sig.	t	df	Sig. (2-tailed)
TQM Practices	Equal variances assumed	5.71	0.018	-8.773	148.00	0
	Equal variances not assumed			-9.478	147.90	0
Non-financial Performance	Equal variances assumed	8.032	0.005	-7.072	148.00	0
	Equal variances not assumed			-7.631	147.90	0

Regression Analysis

Regression analysis is an analysis which is used to evaluate the impact of independent variables (IV's) on the dependent variable (DV). The non-financial performance was taken as the dependent variable (DV) and all TQM practices were independent variables (IV's) in regression analysis.

Overall TQM Practices and Non-financial Performance

Stepwise regression analysis was conducted between overall TQM practices and non-financial performance. Overall model summary results in Table 7 describe that in this model independent variable is explaining 62.9% variation in dependent variable; non-financial performance.

Table 7 Regression model summary (overall)

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.793[a]	0.629	0.626	0.25057
a: Predictors: (Constant), Total TQM practices				

ANOVA results in Table 8 showed that the model is significant ($F=250.81$, $p<0.05$) and can be used for prediction.

Table 8 ANOVA results (overall)

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	15.748	1	15.748	250.814	0.000[b]
	Residual	9.292	148	0.063		
	Total	25.040	149			
a: Dependent Variable: Total non-financial performance; b: Predictors: (Constant), Total TQM practices						

Regression coefficient Table 9 explains that with one unit increase in overall TQM practices approximately 0.773

points increase is expected in non-financial performance. It further describes that TQM practices significantly predict the non-financial performance (β=0.773, t=15.837 and p<0.000).

Table 9 Regression coefficient (overall)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.947	0.196	0.793	4.826	0.000
	Total TQM Practices	0.773	0.049		15.837	0.000
a: Dependent variable: Total non-financial performance						

Individual TQM practices and Non-financial Performance

We performed stepwise regression analysis on individual TQM practices and non-financial performance to identify the significant dimensions in the model with their relative significance. The model summary table showed that out of 5 TQM practices 3 were significant and added in the model. The model 3 is explaining 63.6% variation in the DV using only 3 significant TQM practices i.e. teamwork and involvement, benchmarking and customer focus. Table 10 shows the regression model summary.

Table 10 Regression model summary (individual TQM practices)

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.717[a]	0.514	0.511	0.28668
2	0.777[b]	0.604	0.598	0.25976
3	0.797[c]	0.636	0.628	0.24988
a: Predictors: (Constant), Teamwork and involvement; b: Predictors: (Constant), Teamwork and involvement, benchmarking; c: Predictors: (Constant), Teamwork and involvement, benchmarking, customer focus				

ANOVA results showed that model 1, 2 and 3 are significant (p<0.05) and can be used for prediction. However, in this study, the third step model is chosen due to the addition of 3 significant dimensions in the model. Table 11 depicts the results of the ANOVA analysis.

Table 11 ANOVA results (individual TQM practices)

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	12.876	1	12.876	156.670	0.000[b]
	Residual	12.164	148	0.082		
	Total	25.04	149			
2	Regression	15.121	2	7.561	112.047	0.000[c]
	Residual	9.919	147	0.067		
	Total	25.04	149			
3	Regression	15.924	3	5.308	85.007	0.000[d]
	Residual	9.116	146	0.062		
	Total	25.04	149			
a: Dependent variable: Non-financial performance; b: Predictors: (Constant), Teamwork and involvement; c: Predictors: (Constant), teamwork and involvement, benchmarking; d. Predictors: (Constant), Teamwork and involvement, benchmarking, customer focus						

Regression coefficient table highlighted that teamwork and involvement was the most significant dimension (β=0.655, t=12.517 and p<0.000) in this model because it was added in the first step. The most significant dimension is added in the first step of the model and the least significant in the last step. Similarly, benchmarking is the second most significant dimension (β=0.310, t=5.768 and p<0.00) for non-financial performance. However, customer focus is the last significant dimension (β=0.247, t=3.585 and p<0.000) of TQM to effect the non-financial performance in the hospital industry of Pakistan. Table 12 describes the results of the regression coefficient.

Table 12 Regression coefficients (individual TQM practices)

Coefficient[a]						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.352	0.216	0.717	6.258	0.000
	Teamwork and Involvement	0.655	0.052		12.517	0.000
2	(Constant)	1.044	0.203	0.477	5.145	0.000
	Teamwork and Involvement	0.436	0.061		7.178	0.000
	Benchmarking	0.31	0.054	0.384	5.768	0.000
3	(Constant)	0.847	0.203	0.304	4.178	0.000
	Teamwork and Involvement	0.278	0.073		3.790	0.000
	Benchmarking	0.268	0.053	0.332	5.057	0.000
	Customer Focus	0.247	0.069	0.276	3.585	0.000
a: Dependent variable: Non-financial performance						

Regression analysis between overall TQM practices and the individual dimension of non-financial performance was also performed.

Customer perspective: First regression analysis between overall TQM practices and customer perspective of non-financial performance was performed. The model summary in Table 13 describes that in this model independent variable can explain 71.5% variation in customer perspective element of non-financial performance. ANOVA results in Table 14 show that the model is significant ($F=191.228$, $p<0.05$) and can be used for prediction by the independent variable. Regression coefficient Table 15 explains that approximately 0.764 points increase is expected in customer perspective with 1 unit increase in overall TQM practices. It further describes that TQM practices significantly predict customer perspective of nonfinancial performance ($\beta=0.764$, $t=13.829$ and $p<0.000$).

Table 13 Regression model summary (customer perspective)

Model Summary				
Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.751[a]	0.564	0.561	0.28345
a: Predictors: (Constant), Total TQM practices				

Table 14 ANOVA results (customer perspective)

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	15.364	1	15.364	191.228	0.000[b]
	Residual	11.89	148	0.08		
	Total	27.254	149			
a: Dependent Variable: customer perspective; b: Predictors: (Constant), TQM total						

Table 15 Regression coefficient (customer perspective)

Coefficients[a]						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.014	0.222	0.751	4.565	0.000
	TQM Total	0.764	0.055		13.829	0.000
a: Dependent Variable: Customer perspective						

Learning and growth: Regression analysis between overall TQM practices and learning and growth dimension of non-financial performance was done. Table 16 shows that the independent variable can explain 72.2% variation in

customer perspective element of non-financial performance in this model. ANOVA Table 17 shows that the model is significant (F=160.182, p<0.05) and can be used for prediction. Regression coefficient results in Table 18 explain that one unit increase in overall TQM practices can predict approximately 0.764 points increase in learning and growth dimension of performance. TQM practices significantly predict non-financial perspective of non-financial performance (β=0.833, t=12.681 and p<0.000).

Table 16 Regression model summary (learning and improvement)

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.722[a]	0.521	0.518	0.33736
a: Predictors: (Constant), TQM Total				

Table 17 ANOVA results (learning and growth)

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	18.302	1	18.302	160.812	0.000[b]
	Residual	16.844	148	0.114		
	Total	35.146	149			
a: Dependent variable: Learning and growth; b: Predictors: (Constant), TQM Total						

Table 18 Regression coefficient (learning and growth)

Coefficients[a]						
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.618	0.264	0.722	2.339	0.021
	TQM Total	0.833	0.066		12.681	0.000
a: Dependent variable: Learning and growth						

Internal business processes: Regression analysis between overall TQM practices and internal business processes of non-financial performance was performed. Model summary Table 19 describes that an independent variable can explain 71.5% variation in internal business processes element of non-financial performance. ANOVA Table 20 explain that the model is significant (F=170.581, p<0.05) and can be used for prediction. Regression coefficient Table 21 describes that approximately 0.793 points increase is expected in internal business processes with one unit increase in overall TQM practices. It further says that TQM practices significantly predict non-financial perspective of non-financial performance (β=0.733, t=13.061 and p<0.000). Model summary, ANOVA and regression coefficient tables below explain these results.

Table 19 Regression model summary (internal business processes)

Model Summary				
Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.732[a]	0.535	0.532	0.28803
a: Predictors: (Constant), TQM Total				

Table 20 ANOVA results (internal business processes)

ANOVA[a]						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	14.152	1	14.152	170.581	0.000[b]
	Residual	12.278	148	0.083		
	Total	26.43	149			
a: Dependent variable: Internal business processes; b: Predictors: (Constant), TQM Total						

Table 21 Regression coefficient (internal business processes)

Coefficients[a]					
Country	Unstandardized coefficients		Standardized coefficients	t	Sig.
Model	B	Std. Error	Beta		

Pakistan	(Constant)	1.161	0.226	0.732	5.146	0.000
1	TQM Total	0.733	0.056		13.061	0.000
a: Dependent variable: Internal business processes						

DISCUSSION

The main aim of this study was to explore the impact of TQM practices on non-financial performance from various aspect. It empirically examined the impact of overall and individual TQM practices i.e. teamwork and involvement, customer focus, continuous improvement, benchmarking and process management on non-financial performance. It further explored the impact of overall TQM practices on the individual dimension of non-financial performance.

The first hypothesis of the study was that TQM practices have a statistically significant impact on non-financial performance in Pakistani hospitals. It is evident from correlation findings that overall TQM practices are positively correlated with non-financial performance. Regression analysis also shows that overall TQM practices have a statistically significant relationship with non-financial performance. This explains that TQM practices implemented effectively in a hospital can enhance non-financial performance depending upon the degree of implementation. These indings conirm and support the indings of previous studies including [13,27,32-35].

Three TQM practices; teamwork and involvement, benchmarking and customer focus were found to be significant and contributing effectively in non-financial performance. Teamwork and involvement was the most dominating practice. It is required to focus on other 2 dimensions; continuous improvement and process management, in order to further increase the overall performance of Pakistani hospitals. Results further highlighted that hospitals with JCI standard based quality management system and strong TQM practices deployment showed high performance as compared to ISO 9001 certified hospitals. It is consistent with the findings of research studies by Huarng, et al., [14,36]. They identified that organizations with high TQM practices implementation tend to show a higher level of non-financial performance. Findings of the study revealed that overall TQM practices were also found significantly related to individual dimensions of non-financial performance e.g. customer perspective, learning and growth and internal business processes. Hence the results of this study confirm second, third and fourth hypothesis which individually state that each dimension of non-financial performance is significantly related with overall TQM practices.

CONCLUSION

Hence it can be concluded from this study that effective implementation of TQM practices in healthcare industry yields in enhanced non-financial performance. Therefore performance level may differ depending upon deployment of TQM practices within the specific quality management system. Healthcare managers can focus on the above-discussed TQM practices and look for further practices in their settings which will help in maximizing the non-financial performance of hospitals in the formal quality system. Finally, this study will provide a significant contribution to developing a better understanding of the TQM practices and their impact on non-financial performance in the healthcare industry.

Limitations of the Present Study

This research has a few limitations that can be considered while generalizing the results. The first limitation was the limited sample size which was due to the geographical diversity of Pakistan. This study included only 5 hospitals from 5 regions, where a number of hospitals can be increased to obtain more sample. Secondly, only private hospitals were included in this study owing to the implementation of a formal quality management system.

Recommendations for Future Research

This study contributes to the knowledge about TQM practices and their impact on the non-financial perspective of organizational performance. However significant relations that are discussed in this study should be examined in future researches by involving increased sample, different organizational characteristics e.g. including public hospitals and evaluating the impact of other variables on this relationship.

DECLARATIONS

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

[1] Irfan, S. M., et al. "Improving operational performance of public hospital in Pakistan: A TQM Based Approach." *World Applied Sciences Journal*, Vol. 19, No. 6, 2012, pp. 904-913.

[2] Usman Awan, Muhammad, et al. "Total quality management in developing countries: A case of pharmaceutical wholesale distribution in Pakistan." *International Journal of Pharmaceutical and Healthcare Marketing*, Vol. 3, No. 4, 2009, pp. 363-380.

[3] Afzal, Uzma, and Yusuf, Anam. " The state of health in Pakistan: An overview." *The Lahore Journal of Economics*, Vol. 18, 2013, pp. 233-47.

[4] Akbari, Ather H., Wimal Rankaduwa, and Adiqa K. Kiani. "Demand for public health care in Pakistan." *The Pakistan Development Review*, 2009, pp. 141-53.

[5] Khalid, Faran, and Ahmed Nadeem Abbasi. "Challenges faced by Pakistani healthcare system: Clinician's perspective." *Journal of the College of Physicians and Surgeons Pakistan*, Vol. 28, No. 12, 2018, pp. 899-901.

[6] Finance division government of Pakistan. *Pakistan Economic Survey 2017-18*. 2018, http://www.inance.gov.pk/survey/chapters_18/Economic_Survey_2017_18.pdf

[7] Health resource guide: Pakistan (2018). 2018. https://2016.export.gov/industry/health/healthcareresourceguide/eg_main_108609.asp

[8] Kurji, Zohra, Zahra Shaheen Premani, and Yasmin Mithani. "Analysis of the health care system of Pakistan: lessons learnt and way forward." *Journal of Ayub Medical College Abbottabad*, Vol. 28, No. 3, 2016, p. 601.

[9] Anderson, John C., Manus Rungtusanatham, and Roger G. Schroeder. "A theory of quality management underlying the Deming management method." *Academy of Management Review*, Vol. 19, No. 3, 1994, pp. 472-509.

[10] Dean Jr, James W., and David E. Bowen. "Management theory and total quality: Improving research and practice through theory development." *Academy of Management Review*, Vol. 19, No. 3, pp. 392-418.

[11] Gharakhani, Davood, et al. "Total quality management and organizational performance." *American Journal of Industrial Engineering*, Vol. 1, No. 3, 2013, pp. 46-50.

[12] Kaynak, Hale. "The relationship between total quality management practices and their effects on firm performance." *Journal of Operations Management,* Vol. 21, No. 4, 2003, pp. 405-35.

[13] Zehir, Cemal, et al. "Total quality management practices' effects on quality performance and innovative performance." *Procedia-Social and Behavioral Sciences*, Vol. 41, 2012, pp. 273-80.

[14] Prajogo, Daniel I., and Amrik S. Sohal. "The relationship between TQM practices, quality performance, and innovation performance: An empirical examination." *International Journal of Quality and Reliability Management*, Vol. 20, No. 8, 2003, pp. 901-18

[15] Akgün, Ali E., et al. "The mediator role of learning capability and business innovativeness between total quality management and financial performance." *International Journal of Production Research*, Vol. 52, No. 3, 2015, pp. 888-901.

[16] Cheng, T. C. E., and Petrus WC Choy. "A study of the relationships between quality management practices and organizational performance in the shipping industry." *Journal of Maritime Economics and Logistics*, Vol. 15, No. 1, 2013, pp. 1-31.

[17] Borman, Walter C., and Stephan J. Motowidlo. *Organizational citizenship behavior and contextual performance: A special issue of human performance*. New York: Psychology Press, 2014

[18] Ittner, Christopher D., and David F. Larcker. "Coming up short on nonfinancial performance measurement." *Harvard business review*, Vol. 81, No. 11, 2003, pp. 88-95.

[19] Islam, Md Mazharul, M. A. Karim, and Essam Mohammed Habes. "Relationship between quality certification and financial and non-financial performance of organizations." *The Journal of Developing Areas*, Vol. 49, No. 6, 2015, pp. 119-132.

[20] Kaplan, Robert S., and David P. Norton. "The balanced scorecard: Measures that drive performance." Harvard Business Review, 1992, pp. 71-79.

[21] Buick, Fiona, et al. "Can enhance performance management support public sector change?" *Journal of Organizational Change Management*, Vol. 28, No. 2, pp. 271-89.

[22] Rabbani, Fauziah, et al. "Understanding the context of balanced scorecard implementation: A hospital-based case study in Pakistan." *Implementation Science*, Vol. 6, No. 1, 2011, p. 31.

[23] Takahashi, Toshiro. "Hospital management and the balanced scorecard for healthcare in Japan." *Information Science Studies*, Vol. 17, 2008, pp. 55-75.

[24] Giorgio Lovaglio, Pietro, and Giorgio Vittadini. "The balanced scorecard in health care: A multilevel latent variable approach." *Journal of Modelling in Management*, Vol. 7, No. 1, 2012, pp. 38-58.

[25] Chang, Li-cheng, Stephen W. Lin, and Deryl N. Northcott. "The NHS performance assessment framework: a "balanced scorecard" approach?" *Journal of Management in Medicine*, Vol. 16, No. 5, 2002, pp. 345-58.

[26] Kumar, Vinod, et al. "Impact of TQM on company's performance." *International Journal of Quality and* -a balanced scorecard approach." *Journal for healthcare quality: official publication of the National Association*

[27] Ul Hassan, Masood, et al. "Impact of TQM practices on firm's performance of Pakistan's manufacturing organizations." *International Journal of Academic Research in Business and Social Sciences*, Vol. 2, No. 10, p. 232.

[28] Arumugam, Veeri, Keng-Boon Ooi, and Tuck-Chee Fong. "TQM practices and quality management performance: An investigation of their relationship using data from ISO 9001: 2000 firms in Malaysia." *The TQM Journal*, Vol. 20, No. 6, 2008, pp. 636-50.

[29] Jeng, Yann-Chyn. "Performance evaluation of ISO 9000 registered companies in Taiwan." *The TQM Magazine*, Vol. 10, No. 2, 1998, pp. 132-38.

[30] Prajogo, Daniel I., and Amrik S. Sohal. "Transitioning from total quality management to total innovation management: An Australian case." *International Journal of Quality and Reliability Management*, Vol. 21, No. 8, 2004, pp. 861-75.

[31] Dillman, Don A., Jolene D. Smyth, and Leah Melani Christian. *Internet, phone, mail, and mixed-mode surveys: the tailored design method*. John Wiley and Sons, 2014.

[32] Lai, Mei-Chiao. "*An investigation into the relationship between total quality management practice and performance in a Taiwan public hospital*." 2003.

[33] Abdullah, Muhammad Madi Bin, Jegak Uli, and Juan Jose Tari. "The influence of soft factors on quality improvement and performance." *TQM Journal*, Vol. 20, No. 5, 2008, p. 436.

[34] Sadikoglu, Esin, and Cemal Zehir. "Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms." *International Journal of Production Economics*, Vol.127, No. 1, 2010, pp. 13-26.

[35] El-Tohamy, Abd El-Moneim A., and Atef T. Al Raoush. "The impact of applying total quality management principles on the overall hospital effectiveness: an empirical study on the HCAC accredited governmental hospitals in Jordan." *European Scientific Journal,* Vol. 11, No. 10, 2015.

[36] Huarng, Fenghueih, and Yao-Tzung Chen. "Relationships of TQM philosophy, methods, and performance: a survey in Taiwan." *Industrial Management and Data Systems,* Vol. 102, No. 4, 2002, pp. 226-34.