SUPPLY CHAIN QUALITY MANAGEMENT PRACTICES AND PERFORMANCE OF PRIVATE HOSPITALS IN KENYA

ONDIEK TOBIAS OKOTH
ODOCK STEPHEN OCHIENG (PHD)
JAMES NJIHIA (PHD)
PETER K'OBONYO (PHD)

AMR|||

DBA Africa Management Review

SUPPLY CHAIN QUALITY MANAGEMENT PRACTICES AND PERFORMANCE OF PRIVATE HOSPITALS IN KENYA

Ondiek Tobias Okoth[1], Odock Stephen Ochieng (PhD)[2]. James Njihia (PhD).[3] Peter K'Obonyo (PhD)[4]

Abstract

One of the key responsibilities of any nation is to provide quality and affordable medical services to a significant proportion of population regardless of their social or financial status. This achievable if health institutions can minimize operational cost, sustain high quality of service and generate adequate revenue to reward all stakeholders. Available data from manufacturing and other service industries indicate that supply chain quality management (SCQM) practices adoption has positive impact multidimensional performance metrics. However, there is no certainty that these practices similar effect on private hospitals in Kenya. Hospital supply chains are complex and uniquely characterized by unpredictable demand, managing complex disease conditions using heterogeneous product mix sourced across the globe. The objective of this study was to investigate the effect of SCQM practices on performance of private hospitals in Kenya. The performance measurement captured environmental, operational, market, societal as well as growth and development facets. The conceptual framework was developed after comprehensive review of literature and relevant theories. The theories were; social network theory, stakeholders' theory, relational view and contingency theory. Cress sectional census survey and Positivism paradigm were adopted. Primary data was collected from persons responsible for making supply decisions private hospitals in Kenya using structured questionnaire. Structural equation modeling was used to test hypothesized model. The study confirmed a positive and significant effect of SCQM practices on the performance of private hospitals. It was concluded that successful implementation of SCQM practices improves performance of private hospitals in Kenya. The study findings contribute to knowledge, theory and practice. It is recommended that private hospitals should implement SCQM practices to improve their performance. The findings are limited to private hospitals in Kenya, single respondent from the organizations. Future research should be longitudinal, extend beyond the Kenyan borders and cover other industries to enable generalizability of results.

Key Words: Supply Chain Quality, Management Practices, Organizational Performance, Private Hospitals in Kenya

[1] Doctoral Candidate, School of Business, university of Nairobi. *ondiek.to@uonbi.ac.ke*

[2] Senior Lecturer, School of Business, University of Nairobi

[3] Associate Professor, School of Business, university of Nairobi

[4] Professor School of Business, university of Nairobi

57 |

Introduction

In today's business landscape, the escalated power of stakeholders has pressured organization to pursue multi-dimensional performance parameters to survive. Apart from investors, other key stakeholders specifically; customers, suppliers, governments, employees, society and environmentalists have continued to demand satisfaction to reciprocate their contributions to the organizations (Elkington, 1994). The demand for quality service and products at reasonable prices through environmentally friendly and socially acceptable operations remains a key challenge that firms including private hospitals must address (Flynn & Flynn, 2005; Farnandes, Sampaio, & Carvalho, 2014; Mathur, Gupta, Meena, & Dangayach, 2018). In response, organizations are opting to create systems and networks to extend quality along supply chains referred to as supply chain quality management practices (SCQMPs) to fulfill their financial obligations, compete, survive and prosper (Kaynak & Hartley, 2008; Lin, Kuei, & Chai, 2013; Quang et al., 2016). This integrates network members and stakeholders to ensure quality of products and services at reduced cost along supply chains (Azizi, Maleki, Moradi-Moghadam & Cruz-Machado). This provides conducive business environment for improved organizational performance. Improved performance emanates from synergistic effect of total quality management (TQM) and supply chain management (SCM) integration (Flynn & Flynn, 2005); Faisal, Zillur, & Qureshi, 2011). Total quality management serves to improve internal firm processes while supply chain management integrates internal firm functions with external business partners to achieve competitive advantage and ever improving performance outcomes (Gunasekaran & McGaughey, 2003).

The positive impact SCQM practices on performance has attracted attention of many researchers. This has prompted significant efforts towards conceptual definitions and ascertaining the nature of the relationship in both manufacturing and service sectors globally. Among others, Kuei, Madu and Lin (2001) conceptualized SCQM as network of production and distribution where market demands are correctly met, customers get satisfied and trust is enhanced within the supply system. Robinson and Malhotra (2005) posited that SCQM purposefully integrates and coordinates business operations among supply entities to perfect operation processes, services and goods to deliver superior multifaceted firm performance. Truong et al. (2014) defined SCQM as smooth alignment, synchronization and operationalization of all procedures in supply chain to improve both operational and product quality that optimize customer satisfaction. SCQM practices are explained as activities undertaken by organizations to purposefully join them with their suppliers, customers and other stakeholders to enable movement of money, materials, knowledge and information within the networks (Foster Jr, Wallin, & Ogden, 2011). Identifiable practices include supplier quality management, customer focus, postponement, information sharing, process management and coordinating supply chain. From the definitions, SCQM can be defined as systemic networks and supply chains that ensure preservation of quality of service and product from source to final customers to the benefit of all stakeholders.

Organizational performance refers to a measure of reward or satisfaction in return to contribution by key stakeholders (Rouse & Putterill, 2003). Many studies have prioritized use of financial as ideal measure of firms' performance. However, critics point out that the metric is narrow, short term, historical and lacks strategic orientation (Chagooshi et al., 2015). Holistic, balanced and strategic performance measurement models such as triple bottom line (TBL), balanced scorecard (BSC), business excellence model and V formation model have been developed (Elkington, 1994; Kaplan & Norton,1996; Vijande & Gonzalez, 2007; Myrah & Tina, 2013). Freeman (2010) defined stakeholders as a distinct group or individuals who influence or are shaped by goals of a firm. Stakeholders provide labor, capital, customers and material for production. Upon scrutiny, each model appears deficient of at least a metric that interest a cohort of stakeholders. To fill this gap, the study suggests and adopts Integrated performance measurement framework (IPMF) to measure the impact of SCQM practices on financial, market, operational, societal, environmental, customer, learning and growth perspectives. IPMF is holistic, balances firm's macro and micro view and has strategic view.

Healthcare sector, specifically private hospitals in Kenya, have experienced challenges partially emerging from conflicting interests among investors and society (Kazi & Noman, 2013). In particular, patients have the right to access emergency treatment or a service as stipulated in the national patients' rights charter of 2013. On the contrary, private hospitals have the obligation to generate adequate revenue to fund its operations. It is a general perception that private hospitals provide better quality and reliable medical care private hospitals as compared to public ones (Otieno & Macharia, 2014; Magak, 2014). To manage the situation, the institution must embrace scientific management strategies commonly applied manufacturing industry or other service industries for survival (Turkyilmaz, Bulak, & Zaim, 2015). Supply chain quality management practices can aid the firms in achieving their goals of providing quality, reliable, affordable and accessible healthcare without compromising the mandate to reward stakeholders. The World Health Organization's (WHO) attribute improved healthcare to delivery of cost effective, quality, reliable, safe and accessible healthcare (WHO, 2007). There is scarcity of data on healthcare supply chain despite its uniqueness, importance and complexity (Law, 2016). To achieve the goal of availing universal healthcare pursued by Kenyan government there is need for thorough research to provide data that can aid policy formulation.

Research Problem

There are significant number of studies conducted to establish the relationship between SCQM practices and organizational performance. However, there seem to be variance nomenclature and operationalization of sub variables which has rendered the findings inconclusive and incoherent. On further analysis, some studies have adopted omitted certain subconstructs of SCQM practices and organizational performance. Since the there are interactions among the elements, it would be preferable to have a complete set of the sub variables in one study to shed more light on the nature of the relationship. This study was aimed at expanding knowledge with focus on health sector which is critical for quality health of the nation and economy.

Given the unique nature of health service operations as well as dimensions of quality, transferring SCQM practices from industrial sector to healthcare is not a well understood phenomenon and that's why it may not work as expected. As such, there is need to minimize generative mechanisms common in other sectors since health sector is characterized by power-knowledge belief which closes door to external criticism or adequate automatic learning by health sector managers. A context specific research on the relationship between SCQM practices and organizational performance is necessary and urgent. Finally, most past studies on this subject have applied regression data analysis technique or mixed methods. The methods have unique error minimization abilities that may present challenges in result interpretation. To adequately understand the phenomenon under review, adoption of CB-SEM a robust data analytical technique is important to allow comparison and generalization of results.

Literature Review

Theoretical Review

This study is anchored on social network theory (SNT), stakeholder's theory and relational view. From SNT point of view, there are two consequences of forming networks (Yamin & Kurt, 2018). First, is contagion which is homogeneity creation or spread. Second, is evaluative where performance outcomes for network members. SNT contends that networking with stakeholders leads to extra multifaceted performance benefits. The strength of network theory is embedded in social capital with a view that better performing organizations also have better networks or connections. Formal and informal interactions through supply chain quality management practices mechanisms among individuals and firms in networks play crucial role in ensuring quality along supply chains. Preserved quality in addition to shared information and knowledge in the supply system is beneficial to stakeholders in the businesses (Freeman, 2010). Pagell and Shevchenko (2014) argued that interrelationships and interdependence of system characterizing SCQM practices can lead to improved profits, customer satisfaction, growth, increased market share. The assumptions underpinning SNT provide generic explanation on influence of SCQM practices (network variables) on performance dimensions of interest. Stakeholders theory commits management to reward all stakeholders to achieve and sustain better performance. Firms' strategic decisions are shaped by pressure from stakeholders or simply managing for stakeholders (Miles, 2017). The stakeholder theory explains the view that interconnectedness and interactions of the stakeholders through implementation of SCQM practices improves organizational performance. It is a necessity to pursue multidimensional approach in measuring performance to provide for interest of all the stakeholders (Lahouel, Peretti, & Autissier, 2014). Relational view point, networks formed through inter-organizational linkages are sources of relational rents and competitive advantage (Eloranta &Turunen, 2015). The networked business environment propagates development of social capital (Lavie, 2006). The networks can deliberately be conceived and advanced by partnering organizations to improve firm performance. The three theories

complement each other in predicting the relationship between

Supply Chain Quality Management Practices and Organizational performance

A part from theoretical underpinning, a large number of researchers have empirically confirmed direct link between SCM practices and organizational performance (Fynes et al., 2005; Tan et al., 2002) or quality management and organizational performance (Kuei & Madu, 2001; Lin et al., 2005). Sharma and Modgil (2015) associated quality management impact to employee involvement and SCM to cost reduction. Upon reviewing literature, it is revealed that pursuing both SCM and quality management simultaneously brings about synergy that improves organizational performance (Flynn & Flynn, 2005; Kashwaha & Barman 2010). Few studies that have been conducted to directly link SCQM practices to organizational performance have posted positive results (Lin et al, 2001; Han, Omta & Trienekens, 2007; Okoth & Ochieng, 2016; Ombwayo & Atambo, 2017). There are a number of theoretical explanations behind the findings. SCQM practices bundles product, service quality and value together at every node of supply chain to improve performance of every firm in the network. The implementation of SCQM practices minimizes cost of production and distribution, improve product value or the image of the organization and therefore make it more attractive to customers in the market (Farnandes et al., 2017; Quang et al., 2016; Vanichchinchaia & Igel, 2011; Zhong et al., 2016).

The externalization of quality to customers and suppliers ensures that quality materials and products enter and exit the supply chain (Robinson & Malhotra, 2005). SCQM practices provide an avenue for early engagement, collaboration and communication among the parties (Lin et al., 2013). This facilitates interaction among suppliers, firms and customers to craft, produce and deliver quality products to customer for both financial and non-financial gains to firms. Integration of supply networks need information to eliminate unnecessary stock, poor customer management, revenue loss, primitive capacity planning, confusion in transportation and uneconomical production (Zhong et al., 2016). Postponement ensures flexible delivery volumes and schedules that minimize losses while optimizing operation processes that enhance performance (Bagchi & Gaur, 2018). Continuous process design, management and improvement ensure full customer satisfaction and increases value to all other stakeholders for excellent business results (Farnandes et al., 2011). This relationship is further supported by SNT theory, stakeholders' theory, relational view, dynamic capabilities theory and contingency theory. For example, Soares et al. (2017) based his study on social network theory (SNT) to positively link SCQM practices to quality performance. Lahouel et al. (2014) SCQM used stakeholder theory to get similar results. Eloranta and Turunen (2015) posited that based on relational view, firms benefit from relational rents and competitive advantage created by SCQM practices to improve performance.

The studies reviewed presented certain variations in conceptualization and operationalization of both dependent and independent variables that is potential for impeding clear understanding of the relationship,

implementation of practices and further research. Forster et al. (2011) conceptualized SCQM practices as training, data analysis, SCM, customer relationship management and project management. Kuei et al. (2011) studied the SCQM practices sub variables under the headings; design for six sigma, International standards, global leadership and HRM. In service industry, the SCQM practices were identified as customer relationship, information sharing, trust and inter-organizational integration (Sarico & Rosa, 2016). The trend indicates that almost each researcher differs with the other on this subject matter. Even literature review conducted to build consensus on what constitutes SCQM practices failed to achieve the objective (Quang et al., 2016; Farnandes et al., 2017).

Apart from mixed results and difficulty in interpretation of the findings, these differences have also yielded contradicting or inconsistent research reports at the sub construct level. Li et al. (2004) found significant positive relationship between supplier partnership and organizational performance. Nostratpour and Hamid (2015) reported no relationship between the same variables. Additionally, Keynak and Hartley (2008) found a positive relationship between internal process management and organizational performance. Flynn et al. (2010) found a negative relationship as Samson and Terziovski (1999) found no relationship between similar variables.

The dependent variable, performance, has also been measured differently by many authors. SCQM practices have been found to lead to; supply chain performance, quality performance, competitive advantage, operational performance or organizational performance and competitive (Li et al., 2004; Lee et al., 2011; Quang et al. 2016; Pereira-Moline et al., 2016).Whereas some studies found direct link between SCQM practices and competitive advantage others found that SCQM practices lead to improved organizational performance (Vanichchinchai 2014; Chagooshi et al., 2015; Ibrahim et al., 2016; Zhong et al., 2016; Soares et al., 2017). Away from adopting different performance metrics, some studies have been restricted to measure financial performance or market performance in addition to adopting different levels of analysis. Organizational performance should be a measure of both financial and non-financial outcomes to fairly address interests of the stakeholders (Rouse & Putterill, 2003; Freeman, 2010; Chagooshi et al., 2015; Miles, 2017). Literature therefore presents conceptual and theoretical gap on the link between SCQM practices and organizational performance. As much as there are desperate findings, SCQM practices appear to have either direct or indirect relationship with organizational performance. The study therefore proposed to determine the direct link between SCQM practices and organizational performance from a multidimensional perspective among private hospitals in Kenya.

Conceptual Framework

The latent variable supply chain quality management (SCQM) practices comprised of six observed indicators with each having an average of three items. They include supplier quality management (SQM), customer focus (CF), information sharing (IS), postponement (P), process management (PM) and coordination of supply chain (CSCA) have direct effect on Organizational performance comprising of seven indicators;

financial performance (FP), market performance (MP) and environmental performance (EP). Other indicators of the construct include societal performance (SP), learning and growth (LG), operational performance (OP) and customer perspective (CP).

Conceptual Hypothesis:

H1: There is a significant direct relationship between SCQM practices and the performance of private hospital.
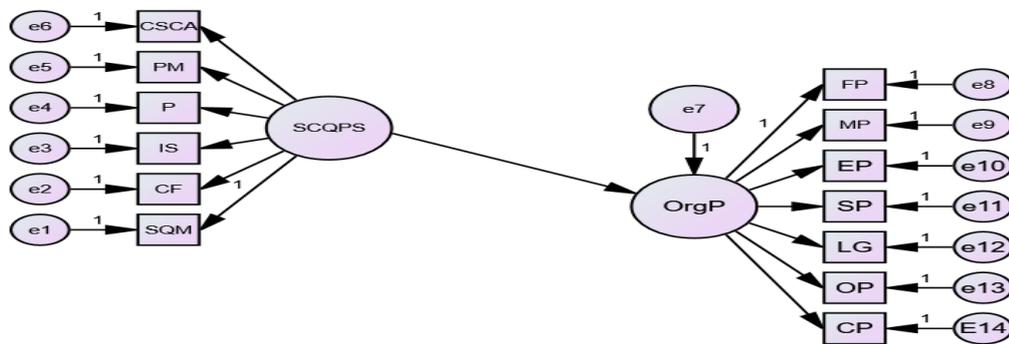
Structural equation model path diagram for direct relationship between SCQMPs and performance

Research Methodology

Study embraced positivist orientation which views the world as a closed system, observable, perceptible, measurable, and quantifiable phenomena capable of being discovered, sensed and explained by humans and involve testing conceptual model and hypothesis established from literature and theories (Ramanathan, 2009). Also, qualitative data was converted to quantitative form for ease of statistical analysis in addition to being objective, consistent, impartial and providing valid outcomes as

conclusions are yielded based on real facts and neutrality (Saunders, et al., 2007) Cross-sectional survey which discloses the nature of relationship between variables at a point in time was adopted in the study (Saunders et al., 2007). The design permits uniform data collection that enhances comparison of information gathered from respondents (Kothari & Garg, 2014). Zikmund (2003) posited that properly conducted cross-sectional surveys produce more accurate data than sampling. Primary data was gathered using questionnaires administered to private hospitals spread

all over Kenya. The population of the study was 158 private hospital under category C according to National Hospital Insurance Fund (NHIF). This cohort of hospitals strive to achieve multidimensional performance goals. NHIF also provides most exhaustive list of hospitals. The study adopted census survey since the proposed data analysis technique covariance based structural modeling requires a minimum sample size of 100. This also catered for non-responses and inappropriate responses. The complex nature of private hospitals operations positions them as fertile research ground in the health service sector. Primary data was collected using structured questionnaire administered through drop and pick later method or emailed to enhance both response rate and quality of data (Cooper & Schindler, 2006). The person tasked with the responsibility of making drug supply chain decisions was picked as the respondent. Campbell (1955) supported the view that the prime respondent in organizations to complete questionnaires must have in depth knowledge of the subject matter and can voluntarily share the information. Latent variables were measured in terms of their indicators which were derived from literature. Each construct was operationalized using multi-item measurable indicators (Dess & Robinson, 1984).

The research tool (questionnaire) recorded Cronbach's Alpha 0.6 which is adequate. Reliability to the measuring scale for all indicators were above 0.3 when assessed using item-to-total which was sufficient (Byrne, 2010). The average variance extracted for all scores were above 0.5 threshold confirming composite reliability. Content validity was accomplished by developing questionnaires consistent with tools available in literature in

consultation with academic experts whose suggestions for modifications were adopted (Gravetter & Forzano, 2009). This was to ensure that instrument which was clear, responsive, specific, readable and adequate. Construct validity checked using confirmatory factor analysis (CFA) revealed that factor loadings were above recommended 0.4 for validity (Stevens, 2002). Convergent validity was tested by evaluating each latent variable using AVE score and confirmed to be above 0.5 (Hair et al., 2010). Discriminant validity was established using heavy factor loading of indicators on the constructs and comparing AVE estimates of latent variable with squared inter-construct correlations associated with the construct. According to Fornell and Larcker (1981), all AVE estimates are supposed to be greater than corresponding inter-construct squared loading to ensure discriminant validity which was achieved. Model diagnosis to facilitate interpretability of the information, reduction of type 1 or type 2 errors, guidance on choice of data analysis technique and making valid and reliable inferences was checked against normality, collinearity, homoscedasticity and autocorrelation. Data was analyzed using CB-SEM. Lee et al. (2011) contended that SEM using AMOS graphics offers flexibility, robust diagrammatic illustrations and easy-to-use interfaces. SEM also maintains parsimony in the proposed structural equation model, tests the research hypotheses, performs model-to-data fit and parameter estimates using path coefficients (Byrne, 1998)

Data analysis and Findings

Out of a total of 158, 121 questionnaires were returned implying that thirty-five (35) hospitals did not respond at all or in time due to a number of reasons.

Explanations advanced include: challenges due to geographical distance, complicated policies, administrative procedures and snubbing by the target respondents to fill the provided questionnaire. The response rate was therefore 77.56%. Some questionnaires lacked important information then excluded during final analysis leaving effective response rate at 70.51%.

KMO and Bartletts Test

There were 13 sub constructs in total. Prior to examining the factor loadings, Kaiser-Meyer-Olkin (KMO) Measures for adequacy of sampling and p-values for Barlett's Test of Sphericity were estimated to confirm if the items were factorable. All EFA report showed that research variables had KMO values of Sampling Adequacy greater than the recommended minimum of 0.6 (Kaiser, 1974). For Barlett's test of Sphericity all p-values were found to be less than the significance level of 0.05 (Barlett, 1954).

Table 1   Kaiser-Meyer-Olkin and Bartlett's Tests

Sub construct	KMO measure	Approx. Chi-Square	df	Sig.
SCQM	.655	66.199	3	.000
Customer focus	.648	49.240	3	.000
Information sharing	.632	18.660	3	.000
Postponement	.627	20.055	3	.000
Process management	.665	64.047	3	.000
Coordination of supply chain activities	.642	41.383	3	.000
Financial performance	.640	77.873	3	.000
Market share	.633	39.920	3	.000
Environmental performance	.661	67.890	3	.000
Societal performance	.681	39.643	3	.000
Learning and growth	.631	45.948	3	.000
Operational performance	.668	26.379	3	.000
Customer perspective	.665	25.748	3	.000

Source: Primary research data, 2019

Model Diagnostics

Prior to data analysis, five model diagnostic tests were performed. Tables two to six show the model diagnostic test that were conducted and the recordings. Table 2 indicates that VIF values was 1.00 confirming absence of multicollinearity. Table 3 show that

Durbin-Watson (d) value for the relationship between SCQM practices is 1.834 which is greater than the d_U value of 1.715 confirming absence of autocorrelation. Results on table 4 indicate that p values for the Koenker test was .630 which is higher tha 0.05 for all the model constructs confirming lack of heteroscedasticity. Shampiro-

Wilk test presented in table 5 indicate that p-values of 0.311 and 0.132 for SCQM practices and organizational performance respectively were greater than 0.05 confirming that data was normally distributed. Result for unidimensionality test shows that the corrected item-total correlation scores for all the indicators representing the latent constructs are above the threshold of 0.3. These values ranged from 0.488 for postponement to 0.682 for learning and growth.

Table 2: Test for Multicollinearity

Model	Variables	Collinearity Test	
		Tolerance	VIF
SCQMP & Organizational Performance	SCQMP, Org Perf	1.000	1.000

Source: Primary research data, 2019

Table 3: Durbin-Watson test for Autocorrelation,

Model	Variables	Durbin Watson Test	d_L	d_U
SCQMP & Organizational Performance	SCQMP, Org Perf	1.834	1.634	1.715

Source: Primary research data, 2019

.

Table 4:   Koenker Test for Heteroscedasticity

Model	Variables	Koenker Test	
		LM	Sig
SCQMP & Organizational Performance	SCQMP, Org Perf	.232	.630

Source: Primary research data, 2019

Table 5: Shapiro-Wilk test for Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Supply Chain Quality Management Practice	.098	110	.011	.986	110	.311

Organizational Performance	.079	110	.085	.982	110	.132

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

.

Table 6: Unidimensionality test

Item to Total Correlation Coefficients

Latent constructs	Indicator items	Correlation
Supply Chain Quality Management practices	Supplier quality management	.636
	Customer focus	.652
	Information sharing	.553
	Postponement	.488
	Process management	.673
	Coordination of supply chain activities	.630
Organizational performance	Finance performance	.518
	Market performance	.647
	Environmental performance	.639
	Societal performance	.559
	Learning and growth	.682
	Operational performance	.557
	Customer perspective	.559

Source: Primary research data, 2019

Source: Primary research data, 2019

Table 7:   Key Latent Constructs

Variables	Type of Construct	Number of observed variables
Supply chain quality management practices	Reflective	Six items
Organizational performance	Reflective	Seven items

Source: Primary research data, 2019

Observed variables of a latent construct which are highly correlated and interchangeable are said to be reflective and should be scrutinized for reliability and validity (Haenlein & Kaplan, 2004; Petter, Straub, & Rai, 2007; Hair et al., 2013; Wong, 2013). For this study, all the latent constructs were found to manifest this characteristic hence making them all to be reflective. Since all these variables are reflective, checked for reliability, validity and uni-dimensionality by conducting confirmatory factor analysis (CFA)

using AMOS software. Table 8 shows the descriptive statistics for all the latent constructs in the outer model. The results show that data for all the variables are fairly normal because all the skewness and kurtosis values were between -1 and +1, with the exception of kurtosis of financial performance.

Table 8:   Descriptive Statistics for Measurement Scales

Latent constructs	Indicator items	Code	No. of items	Mean	Std. Deviation	Skewness	Kurtosis
Supply Chain Quality Management practices	Supplier quality management	SQM	3	3.3606	.89754	-.034	-623
	Customer focus	CF	3	3.5818	.75613	.106	-.479
	Information sharing	IS	3	3.4636	.71548	-.227	.322
	Postponement	P	3	3.4212	.71060	.184	-.164
	Process management	PM	3	3.3545	.84867	-.120	-.886
	Coordination of supply chain activities	CSCA	3	3.4667	.75851	.146	.326
Organizational performance	Financial performance	FP	3	3.3242	.81332	.040	-1.107
	Market performance	MP	3	3.3727	.80611	-.002	-.697
	Environmental performance	EP	3	3.5606	.87313	.325	.764
	Societal performance	SP	3	3.5242	.79814	.347	-.409
	Learning and growth	LG	3	3.5303	.77195	.029	-.612
	Operational performance	OP	3	3.4970	.71783	-.159	.310
	Customer perspective	CP	3	3.6697	.64569	.211	-.171

Source: Primary research data, 2019

Correlation analysis was performed to establish the individual relationship among the variables included in the model. Results showed that the variables have a statistically significant individual relationship with the performance of the private hospitals,

Pearson's correlation for the variables ranging from 0.624 for supply chain quality management practices to 0.737 for organizational factors. The correlation matrix obtained is shown in Table 9

Table 9:   Correlation Matrix (Pearson's correlation)

Variables	SCQMP	OP
SCQMP	1	
OF	.621**	
CA	.417**	
OP	.624**	1

** p < .01. Source: Research data, 2019

To begin with, an evaluation of the indicators of each of the two latent constructs in the SEM model was

undertaken. Table 4.32 presents a summary of the results of the evaluation.

Table 10   Summary of Results for Reflective Outer Models for the Direct Effect

Latent variable	Indicators	Loadings	Indicator Reliability	T statistics	p values
Supply Chain Quality Management Practices	SQM	.760	.714	12.193	.000
	CF	.762	.669	12.293	.000
	IS	.685	.755	9.816	.000
	P	.638	.671	8.639	.000
	PM	.799	.716	13.872	.000
	CSCA	.733	.639	11.235	.000
Organizational Performance	FP	.663	.739	9.238	.000
	MP	.759	.625	12.182	.000
	EP	.762	.723	12.283	.000
	SP	.692	.605	10.010	.000
	LG	.781	.651	13.061	.000
	OP	.677	.630	9.616	.000
	CP	.668	.610	9.371	.000

Source: Primary research data, 2019

Results show that the reliability of all the indicators of the two latent variables are larger than the minimum level of 0.4 and a considerable number are above the preferred level of 0.7 as recommended by Wong (2013). All the outer model loadings are highly significant thus necessitating further analysis (Mustafa, 2018). Composite reliability scores of the latent constructs obtained from the SEM output was assessed to ascertain internal consistency reliability. Table 11 presents the findings.

Table 11   Composite Reliability, Cronbach's Alpha and AVE of Latent Constructs

Latent Variable	Composite Reliability	Cronbach's Alpha	AVE	Square root of AVE or Discriminant Value
SCQM practices	0.612	0.832	0.624	0.789930
Organizational performance	0.980	0.840	0.663	0.814248

Source: Primary research data, 2019.

Findings show that the composite reliability scores for all the latent variables were greater than the 0.6 threshold (Bagozzi & Yi, 1988). The Cronbach's Alpha values for the constructs are above the 0.7 threshold (Hair et al., 2010). Therefore, a high level of internal consistency among the two latent variables is ascertained.

Construct validity for the measurement model in the structural equation model was evaluated using convergent and discriminant types of validity. Convergent validity was confirmed based on Average Variance Extracted (AVE) of each latent variable. Findings illustrated that the AVE values for the two latent variables are greater than the acceptable 0.5 threshold thus confirming convergent validity (Hair et al., 2010). Additionally, the validity was verified by extracting the factor and cross loadings of all items on their respective latent constructs. The items were observed to have higher loadings on their respective latent variable compared to other latent variables as demonstrated by the values exhibited on Table 4.34. The values confirm the theory that the items used to measure a construct should be closely to each other

In the case of discriminant validity, the measurement is aimed at validating that the constructs SQMP practices and organizational performance are not related to each other. Discriminant validity was authenticated by comparing the square root of the average variance extracted (AVE) or discriminant value (DV) of each of latent variable with the correlation value of SCQM practices the latent variable from AMOS output. The AVE of SCQM practices is 0.624 from table 12 and the square root is 0.789930. This square root is therefore greater than the correlation value of SCQM practices (0.62). Based on recommendation by Fornell and Larcker, (1981), the discriminant validity was confirmed.

Table 12   Confirmatory Factor Analysis Results

Indicators	SCQM Practices	Organizational performance	p-values
SQM	**.760**	.338	.000
CF	**.762**	.237	.000
IS	**.685**	.269	.000
P	**.638**	.297	.000
PM	**.799**	.258	.000
CSCA	**.733**	.264	.000
FP	.368	**.663**	.000
MP	.273	**.759**	.000
EP	.317	**.762**	.000
SP	.329	**.692**	.000
LG	.230	**.781**	.000
OP	.276	**.677**	.000
CP	.229	**.668**	.000

Source: Primary research data, 2019

Data obtained show that the constructs items loadings and cross loadings for each of the individual item and their p-values which are highly significant confirm convergent validity.

In this study, involving CB-SEM, Chi Square test of goodness fit (χ^2), Standard Root Mean Square Residual (SRMR) and Goodness-of-fit statistic (GFI) were used to assess the model fitness.

Table 13:   Model Fit Statistics Relationship between Supply chain quality management practices and performance of Private hospitals in Kenya

| Model	χ^2	Df	SRMR	GFI
Default model	5.209	91	0.042	.793

Source: Primary research data, 2019

Results showed that χ^2 was insignificant and equivalent to 5.209 at 91 degree of freedom; SRMR for the data was equivalent to 0.042 while GFI was equivalent to 0.793 which was slightly low due to small sample size. Figure 2 represents the standardized estimates for the existing relationship between the variables in the path diagram while Table 14 shows the standardized

regression weights for the same relationship. Findings show that the SCQM practices explain 39 % of the variation in performance of private hospitals in Kenya. There is also a positive significant relationship between adoption of SCQM practices and performance of the private hospitals ($\beta = 0.624$, t = 8.34, p < 0.001) at 0.05 level of significance.

Table 14   Standardized Regression Weights for the relationship between supply chain quality management practices and organizational performance

			R^2	β	SE	T	P
Organizational performance	<---	SCQMP	.39	.624	.073	8.343	.000

Source: Primary research data, 2019
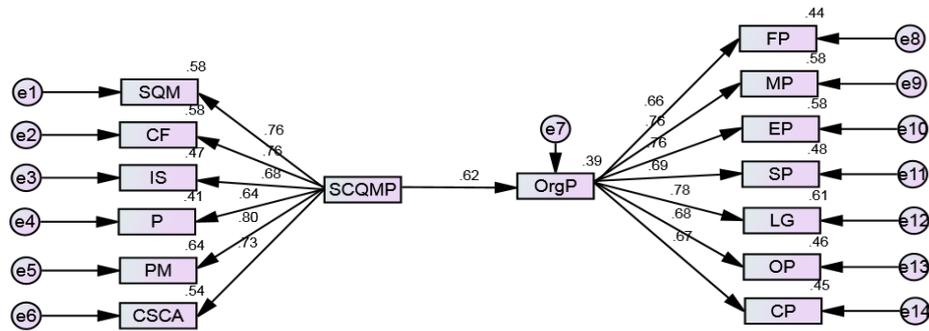
Figure 4.1   Structural Equation Modelling Path Diagram for the Moderating Effect of Organizational Factors on the Relationship between SCQM Practices and Organizational Performance

Model estimation results established a significant positive relationship between SCQM practices and the performance of private hospitals, data analysis confirmed that the SCQM practices explain 39% of the variation in performance of private hospitals in Kenya. The is also a positive significant relationship between adoption of SCQM practices and performance of the private hospitals (β = 0.624, t = 8.34, p < 0.001) at 0.05 level of significance. Hypothesis one (H_1) which predicted a significant positive relationship between SCQM practices and the performance of private hospitals is supported.

Conclusion

The study confirmed that SCQM practices improve performance of private hospitals in Kenya. Reviewed studies support a similar result. Sharma and Modgil (2015) associated quality management impact to employee involvement and supply chain to cost reduction. Kashwaha and Barman (2010) found that pursuing both supply chain management and quality management simultaneously brings about synergy that improves organizational performance. Similar results were also reported by Fynes et al. (2005), Tan et al. (2002), Ombwayo and Atambo (2017) and Han et al. (2007). Farnandes et al. (2017) as well as Quang et al. (2016) attributed the positive link to enhanced organizational competitiveness in the market place due to minimized cost of production and distribution, improved product value or the image of the organization. This observation is also supported by Vanichchinchaia and Igel (2011) and Zhong et al. (2016). The study based on the value of β on the path diagrams explains the differential contribution of the practices (sub constructs) on performance of private hospitals. In particular, postponement (0.64) is the highest

contributor to performance and information sharing (0.41) contributes the least. This finding is consistent with the study result of (Okoth & Ochieng, 2016). In practice, postponement is known to reduce uncertainty, reduce costs of transport, inventory and costs of production (Bagchi & Gaur, 2018). As advised by Berry and Wadsley (1994), firms need to share as little unique information as possible with other firms. This research therefore improves the weaknesses of past studies by giving priority index on which practices firms should emphasize.

To the pool of knowledge, this study clarified the roadmap to achieving multifaceted performance outcome that addresses the plight of all stakeholders. The findings confirm that firms implement SCQM practices that boost financial and non-financial performance. In addition, this study illustrates that the market performance is achieved more compared to other indices of performance when SCQM practices are implemented. Further, the study confirms the need to holistically measure performance as advised by past researchers (Elkington, in 1994; Kaplan & Norton,1996; Rouse & Putterill, 2003; Vijande & Gonzalez, 2007; Myrah & Tina, 2013Freeman, 2010; Chagooshi et al., 2015). Multifaceted performance measurement addresses concern in literature that financial metric is a narrow, short term, historical and lacks universal applicability and strategic orientation (Freeman, 2010). The findings of this study emphasize the need to adequately measure performance which takes care of the interest of all stakeholders as advised by (Kaplan & Norton,1996; Rouse & Putterill, 2003; Vijande & Gonzalez, 2007).

This study was based on three major theories namely; social networks theory,

stakeholder theory and network theory. The key anchoring theory, social network, posited that forming networks through SCQM practices results homogeneity creation and better performance outcomes for network members. This study argued that adoption of SCQM framework comprising of customer focus, supplier relationship management, information sharing, postponement, process management and coordination of supply chain support formation of networks that can address interests of stakeholders such as customers, suppliers, employees, society and environment. The study contributed to practice and policy.

Recommendations

Based on the findings, it is recommended that management of organizations should embrace SCQM practices adoption to achieve better performance. In particular, private hospitals should understand the SCQM practices and execute them in their day to day operations. Management of private hospitals should consider implementing all practices and measure their impact on both financial and non-financial performance parameters. To successfully implement SCQM practices that can contribute towards universal healthcare in the public sector, Government of Kenya should educate, introduce and promote SCQM practices to institutions mandated to provide healthcare services by county governments.

Limitations

The study had certain limitations. First, it only focused on private hospitals and excluded public hospitals and not for profit organizations which tend to serve majority of the population. The study also relied on a single respondent from the institution. The data gathered were mainly dependent on perception, inclination and opinion of the respondent hence results may not be generalizable.

References

Abdallah, A. B., Abdallah, A. B., Abdullah, M. I., Abdullah, M. I., Mahmoud Saleh, F. I., & Mahmoud Saleh, F. I. (2017). The effect of trust with suppliers on hospital supply chain performance: The mediating role of supplier integration. *Benchmarking: An International Journal*, *24*(3), 694-715

Ansoff, H. I. (1975). Managing strategic surprise by response to weak signals. *California management review*, *18*(2), 21-30

Awuor, O.E., & Kinuthia, D.M.W (2013). Total Quality Management Practices in Selected Private Hospitals in Nairobi, Kenya. *European Journal of Business and Management. 5*(13),32-44.

Bagchi, S. S, & Gaur, J (2018). Optimization of postponement process for a two-stage modular manufacturer. *Journal of Global Operations and Strategic Sourcing*,*11*(1), 39-54.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd. Ed) New York: Routledge.

Cadden, T., Humphreys, P. & McHugh, M. (2010). The influence of organizational culture on strategic supply chain relationship success. *Journal of General Management,* 36 (2) 37-61.

Chaghooshi, A. J., Soltani-Neshan, M., & Moradi-Moghadam, M. (2015). Canonical Correlation Analysis between Supply Chain Quality Management and Competitive Advantages. *Foundations of Management*, *7*(1), 83-92.

Che, Y., Li, Y., Fam, K. & Bai, X (2018). Buyer–seller relationship, sales effectiveness and sales revenue: a social network perspective. *Nankai Business Review International,* 9(4), 414-436

Cooper, R.D. & Schindler, S.P. (2008). *Business Research methods* (8th ed). Boston: Irwin McGraw-Hill.

Crick, J.M (2019). Moderators affecting the relationship between coopetition and company performance. Journal of Business & Industrial Marketing, 34 (2)518-531.

Davis, E.C, Arana, E.T, Creel, J.S, Ibarra, J.C, Lechuga, J,Norman, R.A, Parks, H.R,Qasim,A.,Watkins, D.Y.,

Kash, B.A (2018). The role of community engagement in building sustainable health-care delivery interventions for Kenya.*European Journal of Training and Development*, 42 (1/2), 35-47

Dess, G. G., & Robinson, R. B. (1984). Measuring organizational performance in the absence of objective measures: the case of the privately-held firm and conglomerate business unit. *Strategic Management Journal*, *5*(3), 265-273.

Drupsteen, J., Vaart,T.& Donk, D.P , (2016). Operational antecedents of integrated patient planning in hospitals. *International Journal of Operations & ProductionManagement*, *36* (8), 879-900

Drazin, R & Van de Ven A.H (1985). *Administrative Science Quarterly*.*30*(4), 514-539.

Dyer, J. H., & Singh, H. (1998). The relational view: cooperative strategy and sources of Inter-organizational competitive advantage. *Academy of Management Review*, *23*(4), 660-679.

Elkington, J. (1994). Towards the Sustainable Corporation: Win-Win-Win Business Strategies for Sustainable Development. *California Management Review,* 36 (2), 90–100.

Eloranta V. & Turunen, T. (2015).Seeking competitive advantage with service infusion: a systematic literature review. *Journal of Service Management*, 26 (3)394-42.

Eriksson, P & Kovalainen, A. (2008). *Qualitative methods in business research*. London: Sage Publications ltd.

Ferguson, B.R. (2000). Implementing Supply Chain Management. *Production & Inventory Management Journal*, 41(2), 64.

Fernandes, A. C., Sampaio, P., & Carvalho, M. S. (2014). Quality management and supply chain management integration: a conceptual model. *IEOM*, 773-780.

Ferreira, L. M. D., Silva, C., & Azevedo, S. G. (2016). An environmental balanced scorecard for supply chain performance measurement. *Benchmarking: An International Journal*, *23*(6), 1398-1422.

Flynn*, B. B., & Flynn, E. J. (2005). Synergies between supply chain management and quality management: emerging implications. *International Journal of Production Research*, *43*(16), 3421-3436.

Fornell, C., & Larcker, D.F (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*. 18(1), 39-50.

Foster, S. T. (2008). Towards an understanding of supply chain quality management. *Journal of Operations Management*, *26*(4), 461-467.

Foster, S. T., & Ganguly, K. K. (2007). *Managing Quality: Integrating the Supply Chain* (pp. 256-266). Upper Saddle River, New Jersey: Pearson Prentice Hall.

Fotopoulos, C.B. and Psomas, E.L. (2009). The impact of soft and hard TQM elements on quality management results. *International Journal of Quality & Reliability Management,* 26 (2), 150-63.

Ghobadian, A. and Gallear, D. (2001), "TQM implementation: an empirical examination and proposed generic model", Omega, Vol. 29 No. 4, pp. 343-59.

Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press.

Grahovac, J. & Miller, D.J. (2009). Competitive advantage and performance: the impact ofvalue creation and costliness of imitation. *Strategic Management Journal,* 30(11),1192-1212.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks: Sage.

He, Y., Sun, H., Ni, W., & Ng, S.C.H (2017). Re-examining the effects of supplier

integration on operations performance: a relational view. *International Journal of Operations & Production Management*, 37 (12), 1702-1721.

Kang, J., Asare, A.K, Brashear-Alejandro, T., EGranot, E.& Li, P. (2018). Interorganizational drivers of channel performance: a meta-analytic structural model. *Journal of Business & Industrial Marketing*, 33 (2)183-195.

Kaplan, R, S., & Norton, D.P. (1992). The Balanced Scorecard-Measures that drive Performance. *Harvard Business Review, 70* (1), 71-79.

Kaynak, H., & Hartley, J. L. (2008). A replication and extension of quality management into the supply chain. *Journal of Operations Management*,26(4), 468-489.

Kazi, J. A., and Noman, A.N.K. (2013). Determinants of Demand for Health Care in Bangladesh: An Econometric Analysis. *World Journal of Social Sciences,*3(6),153–163.

Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2016. Kenya Demographic and Health Survey 2019. Calverton, MD: KNBS and ICF Macro.

Kuei, C. H., Madu, C. N., & Lin, C. (2001). The relationship between supply chain quality management practices and organizational performance. *International Journal of Quality & Reliability Management*, 18(8), 864-872

Kushwaha, G. S., & Barman, D. (2010). Development of a theoretical framework of supply chain quality management. *Serbian Journal of Management*, 5(1), 127-142.

Lahouel, B.B, Peretti,J. & Autissier, D. (2014). Stakeholder power and corporate social performance: the ownership effect. *Corporate Governance*, 14 (3), 363-381.

Law, K. M. (2016). How schedule issues affect drug logistics operations: an empirical study in hospitals in China. *Industrial Management & Data Systems*, 116(3), 369-387.

Lee, S. M., Lee, D., & Schniederjans, M. J. (2011). Supply chain innovation and organizational performance in the healthcare industry. *International Journal of Operations & Production Management*, 31(11), 1193-1214.

Liapis, N., Theodorou, D., & Zannikos, F. (2013). Absence of TQM across the fuel supply chain: quality failure-associated costs. *Total Quality Management & Business Excellence*, 24(3-4), 452-461.

Lin, C., Kuei, C. H., & Chai, K. W. (2013). Identifying critical enablers and pathways to high performance supply chain quality management. *International Journal of Operations & Production Management*, 33(3), 347-370.

Lachman, R. (1985) Public and private sector differences: CEO's perceptions of their role environments. *Academy ofManagement Journal,* 28, 671-679.

Meijboom, B, Schmidt-Bakx, S & Westert, G (2011). Supply chain management practices for improving patient-oriented care. *Supply Chain Management: An International Journal*, 16 (3), 166-175.

Miles, S. (2017). Stakeholder Theory Classification, Definitions and Essential Contestability, in David M. Wasieleski, James Weber (ed.) *Stakeholder Management (Business and Society 360(1)* 21 – 47

Mohajan, H. K. (2014). Improvement of Health Sector in Kenya. *American Journal of Public Health Research,* 2(4), 159-169

Ombwayo, I.O.K., & Atambo, W.N. (2017). Effects of Supply Chain Quality Management Practices on Performance of SACCOs in Nakuru County, Kenya. *Imperial journal of Interdisciplinary research,* 3(3), 959-983.

Okoth, T.O & Ochieng, S.O (2016) Supply Chain Quality Management Practices and Organizational Performance of Pharmaceutical Distributors and Wholesalers in Mombasa, Kenya. *International Journal of Managerial Studies and Research,* 4(8), 74-82.

Otieno, S. O. & Macharia, D. (2014) Factors Influencing Utilization of Health Services in Kenya: The Case of Homa Bay County. *International Journal of Public Health Science*, 3, (4), 213-223

Pagell, M. and Shevchenko, A. (2014), Why research in sustainable supply chain management should have no future. *Journal of Supply Chain Management*, 50(1), 44-55.

Pan, Z. X., & Pokharel, S. (2007). Logistics in hospitals: a case study of some Singapore hospitals. *Leadership in Health Services*, *20*(3), 195-207.

Sampaio, P, Quang, T.H, Carvalho, M.S Ana Cristina Fernandes, A.C, An D.T.B, Vilhenac, E (2016). An extensive structural model of supply chain quality management and firm performance *International Journal of Quality & Reliability Management*, *33*(4), 444-464.

Rajagopal, P., Zailani, S. and Sulaiman, M. (2009). Assessing the effectiveness of supply chain partners with scalable partners as a moderator. *International Journal of Physical Distribution & Logistics Management*, 39 (8) 649-68.

Razali, N.M. & Wah Y.B. (2011). Power Comparison of Shampiro-Wilk, Kolmorogov- Smirnov, LIlliefors and Anderson- Darling tests. *Journal of statistical modeling and Analytics*, 2, 21-33.

Robinson, C. J., & Malhotra, M. K. (2005). Defining the concept of supply chain quality management and its relevance to academic and industrial practice. *International Journal of Production Economics*, *96*(3), 315-337.

Rouse, P & Putterill, M. (2003).An integral framework for performance measurement *Management Decision*, *41*(8), 791-805

Sabella, A. R., Kashou, R., & Omran, O. (2015). Assessing quality of management practices in Palestinian hospitals. *International Journal of Organizational Analysis*, *23*(2), 213-232.

Samson, D., & Terziovski, M., (1999). The relationship between total quality management practices and operational performance. Journal of Operations Management 17, 393-409.

Sarrico, C.S & Rosa, M.J (2016). Supply chain quality management in education.

International Journal of Quality & Reliability Management, 33(4), 499-517

Sharma, S., & Modgil, S. (2020). TQM, SCM and operational performance: an empirical study of Indian pharmaceutical industry. *Business Process Management Journal.* 26(1), 331-370

Saunders, M., Lewis, P. & Thornhill, A. (2007) Research Methods for Business Students (3)54-95.

Soares, A, Soltani, E and Liao, Y (2017). The influence of supply chain quality management practices on quality performance: an empirical investigation, *Supply Chain Management: An International Journal,* 22 (2),122-144.

Stevens, J. P. (2002). Applied multivariate statistics for the social sciences (4th ed.). Hillsdale, NS: Erlbaum.

Talib, F., Rahman, Z., & Qureshi, M.N. (2011). A study of total quality management and supply chain management practices. *International Journal of Productivity and Performance Management,* 60(3), 268-288.

Truong, H., Sampaio, P., Carvalho, M. S., Fernandes, A. C., & An, D. T. B. (2014). An extensive structural model for supply chain quality management and firm performance. In *ICQEM Proceedings of the 1 st International Conference on Quality Engineering and Management, 2014,*115-131.

UNIDO Pharmaceutical Sector profile Kenya: Global UNIDO Project (2016): Retrieved from: *http://www.unido.org on 1-8-2013*

Vanichchinchai, A., & Igel, B. (2011). The impact of total quality management on supply chain management and firm's supply performance. *International Journal of Production Research*, *49*(11), 3405-342.

Vijande, M.L.S. & Gonzalez, L.I.A. (2007). TQM and firm's performance: An EFQM excellence model research-based survey. *Int. Journal of Business Science and Applied Management,* 2(2)

Vries, J., & Huijsman, R. (2011). Supply chain management in health services: an overview. *Supply Chain Management: An International Journal*, *16*(3), 159-165.

Wadongo, B. & Abdel-Kader, M. (2014). Contingency theory, performance management and organizational effectiveness in the third sector: A theoretical framework. *International Journal of Productivity and Performance Management,* 63(6),680-703.

World Health Organization (2015). World Health series technical report. Geneva. Retrieved from: *www.who.int/medicinedocs/documents/* 1/8/13

Wilcox, M & Bourne, M (2003). Predicting performance. *Management Decision*,41(8),806-816.

Zeng, J., Phan, C.A. & Matsui, Y. (2013). Supply chain quality management practices and performance: An empirical study.*Operations management research* 6(2), 19–31

Zhang, M. &Huo, B. (2013). The impact of dependence and trust on supply chain integration. *International Journal of Physical Distribution & Logistics Management*, *43*(7) 544 – 563

Yamin, M. & Kurt, Y. (2018). Revisiting the Uppsala internationalization model: Social network theory and overcoming the liability of outsidership. *International Marketing Review,* 35(1), 2-17,

Yang, F.& Zhang, X. (2017). The impact of sustainable supplier management practices on buyer-supplier performance: An empirical study in China. *Review of International Business and Strategy,* 27(1),112-132.

Zhong, J., Ma, Y., Tu, Y., & Li, X. (2016). Supply chain quality management: an empirical study. *International Journal of Contemporary Hospitality Management*, *28*(11).

Ziaul Huq, (2005). Managing change: a barrier to TQM implementation in service industries.*Managing Service Quality: An International Journal*, 15 I (5)452-469

Zikmund, W.G. (2003) *Business Research Methods*. 7th Edition, Thomson South Western, Ohio