Total Quality Management Practices and Performance of Public Hospitals in Embu County, Kenya

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Abstract— *In the present-day competitive business environment firms are relentlessly seeking ways to expand and improve quality to enhance business performance. Healthcare institutions have adopted total quality management practices to better their performance since clients are always expressing dissatisfaction about service quality in the public institutions. Total quality management immensely contributes to the improvement of a firm as a whole by increasing quality awareness to reduce inefficiencies. The main objective of the study was to establish the influence of total quality management practices on the performance of public hospitals in Embu County in Kenya.Precisely, the study sought to; establish the influence of top management commitment on the performance of public hospitals in Embu County; determine the influence of customer focus on the performance of public hospitals in Embu County; establish the influence of employee involvement on the performance of public hospitals in Embu County; and establish the moderating role of organizational capability on the influence of total quality management practices on the performance of public hospitals in Embu County. The study used a cross-sectional survey. The target population was 425 employees of the five public hospitals in Embu County. The sample size was 205 respondents arrived at through stratified random sampling. Both primary and secondary data were used to enable the study to achieve the objectives. The study used content validity which was achieved through expert opinion from the supervisor while reliability was established using the Cronbach's alpha. Descriptive and inferential statistics helped in data analysis. The Statistical Package for Social Sciences Version 24 was used in data analysis. Data was presented using tables, graphs, and charts. It was anticipated that the study would assist public hospitals in Embu County to implement strategies to enhance quality and inform policy decisions. The study findings were equally anticipated to improve existing body of knowledge on total quality management practices in the healthcare sector, as well as stimulate further research; and be a reference point for academicians and researchers. The findings indicated that continuous improvement had positive and significant effect on performance of manufacturing firms. Customer focus was found to be significant in explaining the variation of performance and top management commitment was found to have a significant effect of performance of manufacturing firms. Organizational capability had a moderating effect on the relationship between Total Quality Management practices and performance. The study recommended that the management should be committed to total quality by providing strategic direction with respect to quality management practices, which should be aligned to the hospitals' objectives. Policy makers should create a quality framework that is geared towards improving performance and ensure it is adhered to by all stakeholders in the Public Hospitals in Embu County. Finally, the study recommended that similar research be done in other sectors like service industries.*

Keywords— *Total Quality Management Practices; Performance.*

I. INTRODUCTION

For many years, performance of healthcare systems has been a major concern for policy makers and several countries have lately introduced reforms with the explicit goal of improving performance (Abdullahi & Kinyua, 2018). Despite various global health initiatives having been put in place in several nations across the world, performance failures continue to be reported in many public hospitals (WHO, 2013). In an attempt to enhance customer satisfaction, several public healthcare institutions are aggressively adopting strategies that are geared towards providing quality healthcare services to improve performance. Total quality management is one of these approaches aimed at improving performance and reduce costs and many hospitals globally have implemented TQM and still several are implementing it successfully (Talib, Rahman, & Azam, 2010).In view of Gharakhani, Rahmati, Farrokhi, and Farahmandian (2013) total quality management (TQM) is an approach to systematically improve quality for the organization for the purpose of better performance with regard to customer satisfaction, profitability, productivity, and quality. According to Gharakhani *et al.* (2013) TQM helps in improving the performance through increased quality, customer satisfaction, profitability and productivity. However, even after adopting TQM practices the performance of many organizations, particularly public hospitals remains uncertain (Keinan &Karugu, 2018). According to Matendechero (2014), 201 doctors resigned from public health facilities in Kenya and among them, 16 were from Embu county Hospitals. According to *Kenya* Demographic and Health Survey (2013),the neonatal mortality rate (per 1000 births), infant mortality rate (per 1000 births) and maternal mortality rate (per 100,000 births) are 24, 43 and 400 respectively in Embu County while the national averages for the same are 31, 45 and 488.

More so, the disease burden is very high in Embu County, malaria stands at 42.8% related to national average of 27.7%, and these statistics show serious challenges on performance of public healthcare institutions in Embu County (Njagi, 2018). It is still unclear whether total quality management practices actually improve performance of public hospitals, in Embu County. Mohamed (2015) examined the association between total quality management practices and operational performance of private hospitals in Nairobi County and exposed that TQM practices influence leadership practices that affect the operational

performance. However, this was a case study of private hospitals in Nairobi County thus results cannot be applicable in public hospitals in Embu. Ali and Alolayyan (2013) investigated the effect of total quality management on the hospital's performance in Jordan and reported a positive connection between TQM practices and hospital performance. However, the research employed an essentially ex post facto design and was conducted in Jordan and thus this study filled the gap. Ramseook-Munhurrun, Munhurrun, and Panchoo (2011) explored total quality management implementation in a public hospital in Mauritius and discovered that the management sees TQM execution as appropriate and successful in public hospitals. Njagi (2018) explored the effect of strategic resources on performance of public health organizations in Embu County and revealed that human resources, financial resources, information technology, and physical resources positively and statistically significantly effects performance of public health institutions in Embu County.

Muriithi (2018) conducted a case study on factors contributing to rickets among children below five years in Ishiara and Embu hospitals in Embu County and reported that the demographic and socio-economic status, lack of exposure to sunlight as well as poor sunlight exposure practices, nutrition status together with the method of family planning that the mother used prior to conception were predisposing factors to rickets. Thuku (2014) explored the impact of devolution in strategy execution of health care services in Embu County and found that devolution plays an important role in executing the basic health care plan of increased sensitivity of health organizations to local needs. From the review of the above studies, little literature existed on influence of TQM practices on performance of public hospitals in Embu County. Accordingly, this study sought to fill the gap in the aforementioned studies by focusing on Total Quality Management Practices in relation to the Performance of Public Hospitals in Embu County, Kenya.

II. EMPIRICAL REVIEW

Caroline, Harriet, and Anne (2016) explored the role of commitment of top management for successful small and medium-enterprises (SMEs) in projects for youth group in Kajiado North Sub-county of Kajiado County and observed thattop management commitment had a significant positive relationship with performance of SMEs. The study employed a descriptive design and a mixed method to collect and analyze data, and the Spearman's correlation was adopted to test the relationship between the variables. However, the study contradicts Meyer and Allen (1991) and Konovsky and Cropanzano (1991) studies which argue that the commitment to the firm is not in any way related to performance in the organization. More so, the study failed to determine the influence of other TQM practices and was conducted in the SMEs in Kajiado North Sub-county. PourKiani and Tanabandeh (2016) aimed at determining the association between the commitment of the management to quality, job satisfaction, and firm performance among staff of Islamic Republic of Iran's Custom. The study revealed a positive correlation between management commitment to quality service and improvement of organizational performance. The design of the study was an applied scientific research and targeted the employees Iran's Custom Office employees in the Islamic Republic and collected data from 184 respondents. The LISERL software and structural equation modeling to analyze data. However, this study used descriptive design and the statistical package for social sciences (SPSS)and multiple regressions was adopted in data analysis.

Wanyoike (2016) studied the relationship between quality management practices and the performance of organizations amongst manufacturing corporations in Kenya and reported that top management commitment significantly affects performance of manufacturing firms. The study suggested that firms' management should need to be committed to quality through providing the company with a strategic direction. The study was based on the positivism study philosophy using both the descriptive design and explanatory research design. The study targeted 60 manufacturing companies in Kenya and a census sampling technique used for 120 respondents. The study used primary data that was gathered through questionnaires and analyzed by descriptive statistics and inferential analysis. However, this study used descriptive design and was conducted in public hospitals in Embu County. Chepkech (2014) studied the impact of total quality management practices on performance of tertiary institutes in Uasin Gishu County and the study revealed that top management positively as well as significantly affects organizational performance. An explanatory research design was used which targeted 421, comprised of the heads of departments as well as tutors in tertiary institutes in Uasin Gishu County. Stratified random sampling helped in selecting 264 respondents to whom a questionnaire was administered. Descriptive as well as inferential statistics helped in analysis of data. However, the explanatory design was employed and this research design does not provide conclusive results due to a lack of its statistical strength. Also, the study was conducted in tertiary institutions in Uasin Guishu County and therefore the results cannot be applied to public hospitals in Embu County and therefore this was the focus of this research.

Mukami (2017) sought to establish how client relationship management tactics influence satisfaction of customers in Chase Bank in Kenya. A survey research design of 214 workers of Chase Bank from which 65 respondents were picked by stratified random sampling approach. Survey primary data was collected using a questionnaire and regression analysis helped in finding the association between the variables, customer focus and customer satisfaction. The study discovered that focusing on key customers positively influences client satisfaction. The findings however cannot be applied to the public hospitals in Embu County because the study was conducted in Chase Bank of Kenya. Furthermore, the study disregarded the influence of other TQM practices and therefore this study focused on TQM practices and performance of public hospitals in Embu County and customer satisfaction was one of the measures of hospital performance. According to Ajmal and Aslam (2016) in a study on the correlation between customer focus and performance of Pakistanian telecommunication firms observed a positive significant association between customer focus (quality culture) and organizational performance. The study used convenience sampling technique and a

questionnaire aided in data collection. The study adopted different statistical tools in analysis of data; Cronbach's alpha, multiple regression, factor analysis, as well as Pearson correlation. However, the study was conducted in the telecommunication firms in Pakistan and non-probabilistic sampling techniques limit the representativeness of the sample.

In an investigation on the effects of customer focus on performance of public firms in Malaysia using descriptive research design Yaacob (2016) found that customer focus significantly predicts customer satisfaction, employee satisfaction, and innovation. Competitive advantage was used as the moderating variable. Data was gathered using questionnaires administered to the city and municipal council managers who were chosen using stratified random sampling. The study used descriptive data analysis. However, the study was limited to Malaysia and ignored the influence of other TQM practices and thus this study filled the gap by establishing the relationship between TQM practices and performance of public hospitals in Embu County and organizational capability was the moderator variable. Frambach, Fiss, and Ingenbleek (2016) investigated the impact of customer orientation on firm performance, a fuzzy set examination of orientations, environments, as well as strategies. The study observed no evidence on the link between customer orientation and high-performing configurations short of customer orientation and confirms that organizations that perform wellembrace customer orientation. The study employed fuzzy set Qualitative Comparative Analysis and studied only one practice of TQM and thus this study focused on the link between TQM practices and performance of public hospitals in Embu County and used a descriptive research design.

Kuria (2017) studied how participation of employees influences performance of government healthcare organizations in Kenya using a cross-sectional evaluation survey and found out that employee participation influences the performance. A quantitative method was adopted to select the study respondents and cluster sampling helped in sample size selection. Questionnaires were used in obtaining data and descriptive statistics aided by SPSS version 24 was used in analysis of data. The study used linear regression analysis along with Pearson's correlation coefficient to determine the association between variables and findings indicated that enhancement of performance of government healthcare organizations results from employee consultation, delegation, joint decision making, and collective bargaining. However, the study selected Kenyatta Referral Hospital, Kiambu Level 5 Hospital, and Machakos Hospital for the study but public hospitals in Embu County were not among the hospitals selected as the sample size. According to Saeed (2016) in a study on the correlation between employee involvement and organizational effectiveness, workers' involvement significantly and positively influences organizational effectiveness. The study revealed that continuous employee empowerment, capability development, and team orientation increases organizational effectiveness. The study was a quantitative research and used correlation and multicollinearity, and regression to analyze data. However, the study was conducted in Pakistan and the results cannot be applied to public hospitals in Embu County. In addition, the study used organizational effectiveness as the dependent variable and studied only one element of TQM.
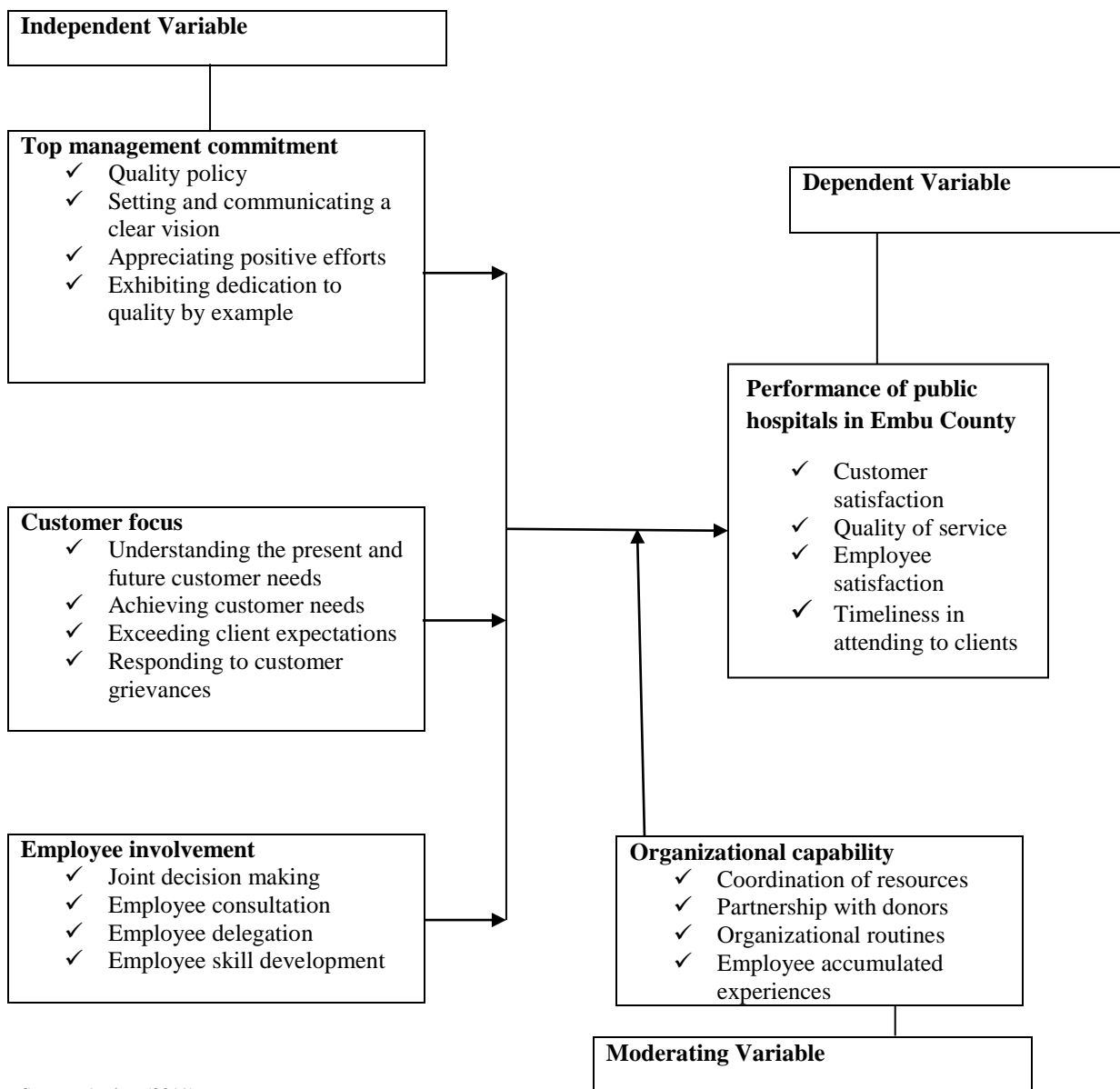
In an investigation on employee engagement and organization performance of Pact in Nairobi. Muthike (2016) observes that there exists anassociation between employee involvement and organization's performance. A census of 28 employees of the Pact Company was performed andquestionnaires were issued to collect data and analyzed through descriptive statistics. Results indicated that the Pact Company engages its workers through participation in formulation of strategies. The study concluded that employee engagement positively impacts organizational performance. However, the study used a census, ignored other TQM strategies that impact on performance, and carried a case study of PactCompany thus limiting the applicability of results. Sofijanova and Zabijakin-Chatleska (2013) explored the link between employee participation and performance Macedonian manufacturing sector and the study results indicated that effectively using employee involvement positively influences the perceived organizational performance. Employee participation as well as empowerment programs, and use of teamwork were also found to have a direct as well as statistically significant correlation to organizational performance and thus the study concluded that firms should adopt employee involvement to better their performance, competitiveness, and growth. The study conducted a survey and statistical and quantitative methods used in testing the hypothesis. However, the study was conducted in the manufacturing sector in Republic of Macedonia and thus a study needs to be conducted in the public hospitals in Embu County.

According to Nyongesa (2014) in a study on the effect of capabilities of the firm in the realization of objectives of the organization at Kenya National Assembly observed that Kenya National Assembly had a number of internal strategic capabilities that provided it with an edge in being able to achieve its objectives as set in the strategic plans. The strategic capabilities that were found to influence the achievement of the organizational objectives were advancement in information technology (IT), qualified work force, a leadership with a long term vision, and a good working relationship the internal and external stakeholders. The study concluded that organizational capabilities of a firm form an essential role to create value as well as improve business performance and the achievement of objectives. The study was a case study design and data collection used an interview guide and analyzed qualitatively using content analysis. Therefore, results from case studies cannot be applicable to other studies. In addition, organizational capabilities was the independent variable and thus this study established its effect as moderating variable on the effect of TQM practices on performance of public hospitals in Embu County.

Ismail, Rose, Uli, and Abdulla (2012) assessed the impact of organizational resources, capabilities, and systems on competitive advantage in Malaysia and the study revealed that organizational capabilities, among other variables such as organizational resources and systems positively and significantly influence competitive advantage. The study was a cross-sectional study and questionnaires for collection of data. The study used random sampling and used Cronbach's alpha in determining reliability. However, this study used competitive advantage as the dependent variable and organizational capabilities was one of the independent variables and the study did not study the effect of TQM practices. Thus, the mediating role of

organizational capability on the effect of TQM practices on performance of public hospitals in Embu County was explored. Said (2010) conducted a study on organizational capabilities and performance of local authorities in Malaysian using a resource-based view perspective by analyzing data from a survey of 140 Information Technology Managers and Accountants. The study concluded that different types of capabilities contribute to different measures of organizational performance. Despite establishing the link between organizational capabilities and organizational performance, the study did not establish whether TQM practices influence performance and organizational capabilities was used as the independent variable.

The study was guided by four theories; systems theory, quality improvement theory, relationship management theory, and resource-based theory. The quality improvement theory was found to be relevant to this study since leaders play a significant role in making sure that quality management succeeds. The top management is responsible for creating and communicating the vision to enable the organization to move towards performance improvement (Oakland, 2012). The relationship marketing theory was applicable to the study because total quality management moves towards satisfying the needs of a person who is the consumer of products and services of a firm. The systems theory is appropriate in this study since an organization, in this case public hospitals are made of different organizational departments, sections, and units which are made up of independent individual employees and teams working together to achieve the performance mandate of the public hospitals (Mater & Ibrahim, 2015). Finally, the resource-based view theory was found to be useful in explaining the moderating role of organizational capability on total quality management strategies and performance of public hospitals in Embu County.

Independent Variable

Top management commitment
- ✓ Quality policy
- ✓ Setting and communicating a clear vision
- ✓ Appreciating positive efforts
- ✓ Exhibiting dedication to quality by example

Dependent Variable

Performance of public hospitals in Embu County
- ✓ Customer satisfaction
- ✓ Quality of service
- ✓ Employee satisfaction
- ✓ Timeliness in attending to clients

Customer focus
- ✓ Understanding the present and future customer needs
- ✓ Achieving customer needs
- ✓ Exceeding client expectations
- ✓ Responding to customer grievances

Employee involvement
- ✓ Joint decision making
- ✓ Employee consultation
- ✓ Employee delegation
- ✓ Employee skill development

Organizational capability
- ✓ Coordination of resources
- ✓ Partnership with donors
- ✓ Organizational routines
- ✓ Employee accumulated experiences

Moderating Variable

Source: Author (2019)

Study Conceptualization

The hypothesized conceptual framework for this study was based on three independent variables: top management, customer focus and employee involvement. The moderating variable was organizational capability while performance of public hospitals in Embu County was the dependent variable. The relationship between the study variables was illustrated in the figure above.

III. STUDY METHODOLOGY

The study adopted cross-sectional survey design. The targeted population were the employees of the five public hospitals in Embu County; Embu Level Five Hospital, Kianjokoma hospital, Runyejes hospital, Ishiara and Siakago hospitals (Embu County health office, 2016). Since there were only five public hospitals in Embu County, census strategy was used. There after stratified random sampling was found to be appropriate in selecting the number of respondents from each department of the hospitals. The study collected primary and secondary data. Secondary data was obtained from official documented sources while primary data was gathered using a questionnaire. Descriptive statistics and inferential statistics were used in analyzing data. Data analysis was aided by the use of SPSS version 24 and results presented in tables, graphs, and charts.

IV. FINDINGS AND DISCUSSION

4.1. Response Rate

Data were coded and then cleaned to ensure consistency. Data were collected from 205 respondents in the study, and the response rate was 86 percent.

Table 4.1: Response rate

	Questionnaires Administered	Questionnaire filled	percentage
Respondents	205	176	86%

Source: research data (2019)

As indicated in Table 4.1, out of 205 questionnaires distributed, 176 were correctly filled and returned. This constitutes a response rate of 86%, which was satisfactory to make conclusions for the study. According to Mugenda and Mugenda (2003), Rogelberg and Stanton (2007) and Saunders *et al*. (2007), a response rate of 50% is adequate; a rate of 60% is good, and a response rate of 70% and over is very good. Based on this awareness, the response rate in this study was considered to be very good for the study.

4.1.1 Demographic Profile of the respondents

Profiles of the hospital's samples, gender of respondents, age brackets highest education Level and Number of years are presented in Table 4.2.

Table 4.2: Results for demographic profile of the respondents

Type of hospital	Frequency	Percentage
Embu Level Five Hospital	50	28.4%
Kianjokoma Hospital	30	17.05%
Runyejes Hospital	20	11.4%
Ishiara Hospital	40	22.7%
Siakago Hospital	36	20.45%
Gender		
Male	70	39.8%
Female	106	60.2%
Age bracket		
Below 25 Years	30	17.04%
25 -35 years	64	36.36%
36 – 45 years	44	25%
46 -55 years	28	15.9%
Over 55 years	10	5.7%
Highest Level of Education		
Certificate	21	11.93%
Diploma	110	62.5%
Degree	30	17.04%
Masters Degree	12	6.81%
Phd	3	1.7%
Number of years of service in Hospital		
Less than 2 years	11	6.25%
3 – 5 years	105	59.7%
6 -10 years	30	17.1%
11 -15 years	12	6.8%
16 – 20 years	15	8.5%
Over 20 years	3	1.7%
Total	**176**	**100%**

Source: research data (2019)

The results presented in Table 4.2 show that Embu Level Five hospital had the Highest number of respondents this was represented by 28.4%, followed by Ishiara Hospital which was represented by 22.7 %. While Siakago Hospital was represented by 20.45 %. Kianjoma Hospital and Runyenjes Hospital was represented by 17.05% and 11.4% thus representing a lower rate of respondents in the public hospitals under study. From all the public hospitals in Embu County, male respondents 39.8% (70) and Female was highest number of respondents (60.2% (106) this showed from all the public hospitals understudy, female dominate the medical practitioner. From the findings in regards to age, respondents aged from 25 -35 years was the highest this was represented by 36.36% (64), 36-45 years was 44(25%). Below 25 years was represented by 30 (17.04%), 46 -55 years was represented by 15.9% and above 55 years was 15.9%. from the study it showed that respondents in the hospital had vast experience in accordance to their age. From the study the highest-level education was Diploma Level, which was represented by 110 (62.5%), the lowest was PHD represented by 3(1.7%) this shows that from the findings the hospitals were not short of professional consultants. This is also evident since masters and degree was represented by 6.81% (12) and 17.04% (30) respectively. From the study findings it was evident that , employees who had worked for more years ranged from 3 -5years this was represented by 59.7%, 6 – 10 years was represented by 17.1%, 16 -20 years was 8.5 % ,less than 2 years was 6.25% 11- 15 years was 6.8% and over 20 years was represented by 1.7%. From the findings it showed that the hospitals had vast experience and also, they are building on their experience as the years go by.

4.2 Descriptive Statistics

4.2.1 Top Management

Top management was investigated using indicators comprising; Quality policy, Setting and communicating a clear vision, appreciating positive efforts, Exhibiting dedication to quality by example. The descriptive statistics for top management are presented below. Table 4.3

Table 4.3 Top management

Statement	N	Mean	Sd
The management supports quality policies	176	4.14	.41
Management views service quality as more important than cost	176	4.18	.46
The hospital top management has established a clear unity of purpose and direction	176	4.15	.41
The top management appreciates positive efforts and accomplishments by the employees	176	4.12	.41
The top management exhibits commitment to quality by showing the way the employees should do their tasks	176	4.24	.35
Aggregate mean score	176	4.16	.408

Source: Survey data(2019)

The results in Table 4.3 yield an overall mean score of 4.16 and standard deviation of 0.408. The top management exhibits commitment to quality by showing the employees should do their tasks had the highest level of agreement (mean score=4.24, SD=.035). This shows that most respondents agreed that top management plays a vital role for effective total quality management practices thus enhancing the performance of public hospitals. The lowest score was noted where the respondents agreed that top management appreciates positive efforts and accomplishments by the employees in regards to performance this was represented by a (mean score of 4.12 and Sd= .41)

4.2.2 Customer Focus

The variable Customer Focus was measured using indicators comprising, Understanding the present and future customer needs, achieving customer needs, exceeding client expectations, responding to customer grievances. The descriptive statistics for each of these indicators are presented and discussed in Table 4.4.

Table 4.4 Customer focus

Statement	N	Mean	Sd
The hospital focuses on understanding the future and present needs of the clients	176	4.21	.21
The hospital values the achievement of the needs of the customers	176	4.82	.22
Focusing on exceeding the needs of the customers improves organizational performance	176	4.48	.22
The hospital has put in place clear channels for customers to communicate with the organization to provide feedback on services provided	176	4.49	.56
A summary of customer complaints is given to the various managers and customer complaints related to quality are given top priority	176	4.21	.43
Aggregate score		4.44	.33

Source: research data (2019)

The results in Table 4.4 reveal that the mean score for the items used to measure customer focus was 4.4 and the standard deviation was 0.33. The overall mean score of 4.4 indicated that the customer agreed on how the needs and expectations are communicated throughout the hospitals in Embu County. This is expected to enable them to create products and services of superior value, thereby creating greater customer value and satisfaction, which leads to superior hospitals' performance.

In addition, the results show that the hospitals surveyed collect, the hospital values the achievement of the needs of the customers (mean score=4.82 Sd=.022). The results showed that, summary of customer complaints is given to the various managers and

customer complaints related to quality are given top priority. The results imply that most of the whose mean was above 4.21 and low disparity of standard deviation from customers (SD 0.43).

4.2.3 Employee involvement

The variable Employee involvement was measured using the indicators that entailed; Joint decision making, Employee consultation, Employee delegation, Employee skill development. The descriptive statistics for each of these indicators are presented and discussed in Table 4.5.

Table 4.5 Employee Involvement

Statement	n	mean	sd
Employees are given a chance to participate in organizational decision making	176	4.15	.41
The senior managers of the hospital listen to the opinions of the employees	176	4.06	.24
All the hospital staff works in teams, with members from a various departments	176	4.13	.38
The organization actively involves the employees in quality-related activities	176	4.12	.41
The hospital empowers the employees to take direct and useful actions that affect service quality	176	4.19	.26
Aggregate scores	176	4.13	.34

Source: Research data (2019)

As shown in Table 4.5, the overall mean score of 4.13 indicates that firms agreed that employee involvement contributes to performance of public hospitals in Embu County. However, it was noticeable from the results above that respondents strongly agreed that the hospital empowers the employees to take direct and useful actions that affect service quality (mean 4.19, SD 0.26). Subsequently, the senior managers of the hospital listen to the opinions of the employees (mean 4.06) (sd 0.24) which was slightly agreed upon. Generally, the responses are clustered around the mean responses and the overall standard deviation is low, revealing agreement amongst respondents that Employee involvement is important for performance of public hospitals in Embu County.

4.2.4 Organization Capability

This sub-section presents the descriptive statistics for the moderating study variable, organizational capability.

Table 4.6 Organization Capability

Statement	N	Mean	Sd
The hospital effectively coordinates its resources to achieve the desired performance	176	4.14	.27
The hospital deploys the resources in the right areas	176	4.21	.39
The hospital collaborates with donors to effectively meet the needs of the customers	176	4.14	.41
The accumulated experiences of the hospital staff are important in attending to the patients	176	4.20	.58
Employees understand and follow the hospital routines to enhance performance	176	4.18	.46
Aggregate scores		4.17	.42

Source: Research data (2019)

As presented in Table 4.6, the overall mean score and standard deviation stands at 4.17 and 0.42 respectively. The mean score indicates that hospitals have the capacity to support quality management practices, leading to performance enhancement. The study respondents strongly agreed that the hospital deploys the resources in the right areas as shown by a mean of 4.21, the hospital collaborates with donors to effectively meet the needs of the customers and that the hospital effectively coordinates its resources to achieve the desired performance shown by a mean of 4.14. From the findings some of the respondents agreed to the finding that, the accumulated experiences of the hospital staff are important in attending to the patients thus improving on the quality of the hospital this was represented by a mean of 4.20. From the findings it was also clear that the respondents agreed to the fact that, the employees understood and follow the hospital routines to enhance performance this was represented by a mean of 4.18.

4.2.5 Performance of public hospitals

The respondents agreed or disagreed with statements on the performance of public hospitals in Embu County.

Table 4.7 Performance of Public Hospitals

Statement	N	Mean	Sd
Customer satisfaction	176	4.24	.35
Quality service	176	4.19	.26
Employee job satisfaction	176	4.15	.41
Timeliness of service to the patients	176	4.06	.24
Aggregate scores		**4.16**	**.32**

Source: Research data (2019)

The results in Table 4.7 indicate that majority of the respondents strongly agreed that customer satisfaction contributed highly to a hospital's performance. This was indicated by the mean score of 4.24. There was another category of respondents who moderately agreed that quality service proved to be key to the performance of the hospital this was represented by a mean of 4.19. Consequently, some of the respondents slightly agreed that, timeliness of service to the patients was a key indicator to the performance of the Hospitals this was represented by a mean of 4.06.

4.3 Regression Analysis

For both hypotheses, the step-by-step regression model was used. Diagnostic tests were therefore required to validate that the data collected were correctly incorporated into the model.

4.3.1 Diagnostic tests

Using the regression analysis, the following diagnostic tests were conducted: normality, linearity, homoscedasticity and Multicollinearity tests.

a) Normality test

Normality was tested using the Shapiro-Wilk test, where deviations from normality can be identified. The statistics range from zero to null and $p > 0.05$ shows the data to be normal. The results are as presented in Table 4.8

Table 4.8 Normality Test.

Variables	Statistic	df	Sig
Top Management	.755	175	0.000
Customer Focus	.836	175	0.000
Employee Involvement	.824	175	0.000
Performance	.884	175	0.000

Source: Research data (2019)

Table 4.8 shows that among the research variables, some had figures ranging from -0.1 to +1.0 and most of them were skewed toward +1.0. Performance had the highest value of calculated probability (.884), whereas top management had the lowest value of calculated probability (.755). In this case, the resulting calculated probability values for all the research variables are greater than 0.05; therefore, at 5% level of significance the sample follows a normal distribution

b) Linearity test

Linearity test was done using Pearson's moment correlation coefficient between performance of public hospitals, top management, customer focus and employee involvement. The results are as shown in Table 4.9

Table 4.9 Linearity Test

		Performance of public hospital
Top Management	Pearson correlation Sig. (2- tailed) N	.344** 0.02 176
Customer Focus	Pearson correlation Sig. (2- tailed) N	.334** .000 176
Employee involvement	Pearson correlation	.562**
	Sig. (2- tailed)	.000
	N	176
** P< .05		

Source: Research data (2019)

Table 4.10 indicates that there is a positive and significant linear relationship between a Hospital's performance and top management, customer focus, and employee involvement, at 5 percent level of significance. The results indicate that employee involvement is ($r=0.562$, $p<0.05$), customer focus ($r = 0.334$, $p<0.05$), and top management ($r =0.344$, $p< 0.05$); thus, as employee involvement increases, so does the Hospitals' performance. Weak but significant relationship was also found between customer focus and performance at ($r= 0.334$, $p<0.05$). Top management has a positive relationship, with performance at ($r =0.344$, $p <0.05$). The implication of results was that there was co-movement of variables, and in the same direction. Thus, there is need to conduct regression analysis in order to estimate causal relationship. Therefore, linear regression is suitable and can be estimated in this study.

c) Test for homoscedasticity

Homoscedasticity was tested by the use of Levene's Test of Homogeneity of Variances. Homogeneity of variances assumes that the dependent variable exhibits equal variance across the range of predictor variables. If the variances in the two groups are different from each other, then adding the two together is not appropriate and thus not yield an estimate of the common within-group variances. Therefore, the Levene Test for Homogeneity of the Variance was used to measure the equality of variances for the variables.

The use of Levene's Homoscedasticity Test of Variances measured homoscedasticity. Homoscedasticity of variances assume that the variable depends on equally different predictor variables. If the variances of the two groups are distinct from each other, it is not acceptable to add the two together and do not estimate the specific variances within the group. The Levene Homoscedasticity test has therefore been used to measure the equality of variances for variables.

If the test is significant (calculated probability > 0.05), the two variances are not significantly different and are thus approximately equal Results are as tabulated in Table 4.10.

Table 4.10: Levene test

Variables	Levene Statistic	df	Sig
Top management	7.640	1	.138
Customer focus	4.421	1	.721
Employee involvement	8.721	1	.071
Organization capability	6.321	1	.194

Source: Research data (2019)

Table 4.10 reveals that the calculated probability is p >0.05 for all the variables. The calculated probability values generated from this test ranged between .071 for Employee Involvement and 0.721 for Customer Focus. The result shows that the significance level of Levene Test is greater than 0.05, indicating variance homogeneity.

d) Multicollinearity test

To establish whether multicollinearity would pose a problem, regression analysis was conducted. Tolerance and Variance inflation factors (VIF) are given below in Table 4.11.

Table 4.11: Results of Multicollinearity test

Model	Collinearity Statistics	
	Tolerance	Mean VIF
Top management	.779	1.345
Customer focus	.853	1.189
Employee involvement	.652	1.468
Organization capability	.692	1.552
Dependent Variable; Performance of Public Hospitals		

Source: Research data (2019)

Table 4.11 indicates that all the VIFs of the variables were less than 10 and Tolerance greater than 0.1 respectively. VIF of greater than 10 and Tolerance less than 0.1 suggests multicollinearity. Employee involvement yielded the least VIF at 0.652 and Customer Focus generated the highest VIF at 0.843. This implies that there was no multicollinearity and thus all the predictor variables were maintained in the regression model.

4.4 Test of Hypotheses

This section presented the study findings based on the objectives. The validity and reliability of the findings are established by the section's discussions of pre-estimation diagnostics, followed by interpretation of results, based on the objectives and tests of hypothesis. The hypotheses were tested at 5 percent level of significance as a statistic basis for drawing conclusions.

Table 4.12(a) Regression of total quality management practices on performance of public hospitals in Embu.

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
	.872[a]	.761	.754	.1673
a) Dependent variable: performance of public hospitals				

Source: Research data (2019)

Table 4.12 (a) indicates that the adjusted R^2, also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. The model had an R square coefficient of determination of 0.761 and which implied that 76.1% of the variations on quality management practices are explained by the performance, while the rest are explained by variables not fitted in the model.

Table 4.12 (b) ANOVA of quality management systems

Model		Sum of Squares	df	mean	f	Sig
1	Regression	8.822	3	2.941	105.097	.000[b]
	Residual	2.770	173	.028		
	Total	11.592	176			
Dependent variable: performance of public hospitals						

Source: Research data (2019)

Critical value = 2.45

The ANOVA results, Table 4.12 (b), show statistically significant relationship between quality management practices and firm performance. The F-test results 105.097, was positive and significant at p= 0.000 < 0.05. Therefore, the null hypothesis was rejected and concluded that there was significant relationship between quality management practices and firm's performance.

Table 4.12 (c) Coefficient of quality management practices and performance of public hospitals in Embu.

	Unstandardized coefficients		Standardized coefficients	t	Sig
	b	Std. Error	Beta		
(constant)	.112	.088			
Top Management	.268	.095	1.87	3.173	.002
Customer focus	.445	.092	.416	4.845	0.000
Employee involvement	.392	.0.95	.384	4.118	0.000

Results in Table 4.12(c) indicate a multiple linear regression of Total quality management practices and performance of public hospitals.

$$Y = 0.112 + 0.268\,TM + 0.445\,CF + 0.392\,EI + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. (1)$$

From the above regression equation, it was revealed that holding top Management, customer focus and Employee Involvement to a constant zero, the performance of public hospitals would be at 11.2%, a unit change in top management would lead to 26.8% change in Performance, while a unit change in Customer Focus would change Performance by 44.5%, and a unit change in employee involvement would change the Performance by 39,2%. The study findings indicate that the of overall total quality management practices was important, with impact on results on all variables om performance.

$H0_1$: Top Management has no effect on performance of public hospitals in Embu County.

The first objective sought to establish whether top management affects performance of public hospitals in Embu County. A null hypothesis, $H0_1$, with the assumption that Top Management has no effect on performance of Public Hospitals was formulated.

Table 4.13 (a) Model of fit
(a) Goodness of fit on Top Management

Model	R	R square	Adjusted R Square	Standard Error
1	.561	.315	.306	.19657

Source: Research data (2019)

The results in Table 4.13 (a) show that adjusted R^2 was 0.306. This meant that top management explained 30.6% of the variations in performance, leaving 69.4% of the variations to be explained by other variables not fitted in the model. An evaluation of the model relating to top management and hospitals' performance was done. The model had an $R^2 = 0.306$, which meant the model provided a weak fit.

Table 4.13(b) Analysis of variance statistics on top management commitment

Model	Sums of square	df	Mean Square	F	Significance (p value)
Regression	0.512	1	0.512	13.262	0.000
Residue	3.903	175	0.390		
Total	4.415	176			
Dependent Variable: Hospitals Performance Predictors: (Constant), Top Management					

Source: research data (2019)

Table 4.13(c) Coefficient of Top Management Commitment

	Unstandardized coefficient		Standardized Coefficient	T value	Sig.
Model	Beta	Std error	beta		
Constant	2.945	.508		.5795	.000
Top management	0.381	0.105	0.341	3.642	0.001
Dependent Variable: Hospitals performance Predictors; (constant), top management					

Source: research data (2019)

Table 4.13(c) results indicate that on evaluating the model Top Management and Performance of hospitals, the following relationship was derived:

$$P = 2.945 + 0.341\,TM\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.\ldots\ldots\ldots\ldots (2)$$

Where;

P = Performance of public hospitals

TM = Top Management

The standardized beta coefficient in the equation above shows that Top Management had a beta value (β0) of 0.341. This meant that a unit increase in top management would result in a 34.1 percent increase in firm's performance. The Regression Model revealed that Top Management was statistically significant at (β=0.341; t= 3.642; p= 0.001); thus, at 5 percent level of significance, Top Management had a positive and significant effect on Performance of public hospitals. Therefore, the study rejects the null hypothesis at 5 percent level of significance, implying that there is a positive significant relationship between top management and performance of hospitals in Embu County.

$H0_2$: Customer Focus has no effect on performance of hospitals in Embu County.

The second objective sought to assess the effect of customer focus on performance of hospitals in Embu County. A null hypothesis, $H0_2$, was formulated with the assumption that customer focus has no effect on performance of hospitals in Embu County. Linear regression was used to establish the relationship between customer focus and public hospitals' performance in Embu County

Table 4.14 (a): Model of fit on customer focus and Performance of Public Hospitals in Embu County.

Model	R	R Square	Adjusted R square	Standard error
1	0.701[a]	0.491	0.484	0.5543

(Source; research data, 2019)

The results in Table 4.14 (a) indicate that the adjusted $R^2 = 0.484$. This implies that customer focus contributes 48.4% percent of the variation in firm's performance. The rest 51.6 percent is explained by variables not fitted in the model.

Table 4.14 (b); Analysis of variance statistics on Customer Focus

Model	Sums of square	df	Mean Square	F	Significance p value
Regression	0.756	1	0.756	33.65	0.003
Residue	24.203	175	0.202		
Total	24.959	176			
Dependent Variable: performance of Public Hospitals in Embu County					
Predictors: (constant) Customer Focus					

(Source: Research data, 2019)

The findings in Table 4.14 (b) reveal a statistically significant relationship between customer focus and performance of public hospitals in Embu County. The statistically proposed model fitted the data well, as F test results was (1, 175) = 33.65, p-value=.000 at 5% level of significant). Therefore, at 5 % level of significance, the null hypothesis was rejected, implying that customer focus has a significant effect on performance of public hospitals in Embu County.

Table 4.14 (c) Coefficient of Customer Focus and Performance of Public Hospitals

Model	Unstandardized Coefficients		Standardized Coefficient	t	Significant P value
	B	Std. Error	Beta		
(Constant)	0.219	0.108		2.020	0.051
customer focus	0.720	0.122	0.700	5.884	0.000
Predictors: (Constant), Customer Focus					
Dependent Variable: firms Performance					

(Source: research data, 2019)

Table 4.14 (c) indicates that the model had a beta coefficient = 0.700, meaning the model provided a strong fit. The following model presented this relationship:

P = 0.219+ 0.700 CF+ ε…………………………………………………..… (3)

Where

P = performance

CF = Customer Focus

The results illustrate that a unit increase in customer focus is responsible for increasing Performance by 0.700. The regression model revealed that customer focus was statistically significant at β=0.700, t=5.884, p= 0.001. Therefore at 5% level of significance, customer focus had a significant positive effect on Performance of public hospitals in Embu County. This means that null hypothesis was not supported at 5 percent level of significance, implying that there is a positive significant relationship between customer focus and performance of public hospitals in Embu County.

$H0_3$: Employee involvement has no effect on performance of public hospitals in Embu County

The third objective was to establish the effect of Employee involvement on performance of public hospitals in Embu County. A null hypothesis ($H0_1$) was formulated with the assumption that Employee involvement has no effect on performance of public hospitals in Embu County. The study used linear regression analysis to examine the relationship between Employee involvement and firm's performance.

Table 4.15 (a): Model of fit of Employee involvement and Performance

Model	R	R Square	Adjusted R square	Standard error
1	0.758[a]	0.573	0.566	0.1769
a; Predictor constant: Employee Involvement				

Source; Research data, 2019

Table 4.15 (a) results shows that under Model One, the value of adjusted R^2 was 0.566. This meant that Employee involvement explained 56.6 % of the variations in hospitals performance, while 43.4% is explained by other variables not fitted in the model.

Table 4.15(b) Analysis of variance statistics on Employee involvement

Model	Sums of square	df	Mean Square	F	Sig
Regression	1.251	1	1.251	49.94	0.000
Residue	3.164	175	0.081		
Total	4.415	102			

a. Dependent Variable: Firms Performance
(Source; research data, 2019)

The ANOVA Test in Table 4.15(b) shows the results for the Regression Model. The null hypothesis was rejected because the linear regression F-test result, = 49.94, was significant at 5% level of significance. Therefore, the null hypothesis was rejected and concluded that there was a significant relationship between Employee involvement and performance of public hospitals.

Table 4.15 (c) Coefficient of Employee involvement and Performance of Hospitals

Model	Unstandardized Coefficients		Standardized Coefficient	t-value	Sig.
	B	Std. Error	Beta		
(Constant)	2.436	0.374		6.518	0.000
Continuous improvement	0.493	0.578	0.532	6.320	0.000
Predictors: (Constant), employee involvement Dependent Variable: performance of Public Hospitals					

(Source; Research data, 2019)

Results in Table 4.15 (c) indicate the model relating to Employee involvement and Performance of hospitals. The model had an R^2= 0.566, which meant the model provided a moderate fit. Following the linear regression analysis of Employee involvement and hospitals performance, the fitted model was determined as: P = 2.436+ 0.532 EI+e…………………………………(4)
Where
P = Performance.
EI= Employee Involvement

The equation shows that Employee involvement had a coefficient (β_0) of 0.532. This meant that a unit change in Employee involvement would result in a 53.2% change in Performance. The t-statistic and corresponding p-value were t-value, = 6.32 and p value= 0.001 respectively. Therefore, at 5 percent level of significance, the null hypothesis was rejected, implying that Employee involvement had a positive significance relationship on performance of public hospitals in Embu County.

4.4.2 The moderating effect of organizational capability

The fourth objective sought to assess the moderating effect of operating environment on the relationship between quality management practices and performance. To test the moderating effect of the organizational Capability on the relationship between total quality management and performance, two regression models were used

H0$_4$: Organizational capability has no moderating effect on the relationship between quality management practices and the performance of public hospitals in Embu County.

Table 4.16 Coefficient of organizational Capability

Model		Unstandardized Coefficients		Standardized coefficients	t- value	Sig (P- value)
		B	Std. error			
1	(constant)	.863	.008		9.93	0.000
	Total quality management Practices	.282	.010	.438	2.52	0.012
	Organizational capability	.211	.012	.279	1.65	0.000

(Source; Research data, 2019)

Results in Table 4.16 represents interaction between total quality management practices and organizational capability. Moreover, the change in coefficient of determination (R change = 0.138, F change =1.498 and p value = 0.001) reveals that there is significant moderating effect of organizational capability on the relationship between total quality management practices and performance of Public Hospitals.

P=   0.863+ 0.438TQMP + 0.211 OC+ ε…………………………………………… (5)
Where:
P= Performance
TQMP= total quality management practices
OC=Organizational Capability
E = error term

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The performance of public hospitals in Embu County has been wanting for a long period despite the adoption of quality management practices. Previous studies done on performance globally and in Kenya did not focus on manufacturing firms. The current study sought to establish the relationship between Total quality management practices and performance of public hospitals in Embu County.

Accordingly, a comprehensive conceptual framework was developed and tested empirically, guided by the following objectives: To determine the extent to which top management commitment affect performance, to assess the effect of customer focus on performance, to establish how employee involvement affect performance and to assess the extent to which the organizational capability moderates the relationship between total quality management practices and the performance of public hospitals in Embu County.

The study employed descriptive and explanatory research design, which was cross sectional in nature. Primary data was collected using a structured questionnaire and validated by secondary data. The data were analyzed using descriptive and inferential statistics. Descriptive statistics was used to describe and summarize data. Inferential statistics, particularly Pearson's Product Moment Correlation was used to quantify the strength and direction of the relationship between variables, and regression analysis was used to establish the hypothesized relationship among the study variables.

The findings indicated that most of the respondents were from Embu Level Five represented by 28.4%. This was an indication that the hospitals had resources to implement, monitor and sustain total quality management practices to improve the quality of products, thus enhancing performance. Most of the respondents were highly skilled, as their level of education was post-secondary and above. The indicators of total quality management practices, were Top management, Customer Focus and followed by employee involvement. The moderating effect was organizational capability.

The first objective of the study sought to determine the extent to which top management affects performance of total quality management practices public hospitals in Embu County. The findings of the study established that the results were positive and significant and that top management contributed to the variation on performance. Based on these findings, the null hypothesis (H0$_1$) was rejected.

The second objective of the study sought to examine the extent to which customer focus affects performance of public hospitals in Embu County. The null hypothesis was rejected since customer focus had significant effect on performance of public hospitals in Embu County.

The third objective sought to establish the extent to which Employee involvement affects performance of total quality management practices public hospitals in Embu County. In order to find out the relationship between Employee involvement and performance, the researcher tested the hypothesis on the relationship between the two variables. The findings indicate positive significant relationship between Employee involvement and performance in Kenya, based on the fact that the null hypothesis (H0$_3$) was rejected. This implies that firm performance triggers performance.

The fourth objective was to assess the moderating role of organizational capability on the relationship between total quality management practices and the performance of public hospitals in Embu County. The findings showed that organizational capability moderated the relationship between total quality management practices and performance of public hospitals in Embu County. This implied that organizational capability factors directly influence the relationship between total quality management practices and performance of public hospitals in Embu County; hence, the null hypothesis was rejected and the study established that the organizational capability is a moderating variable that positively affects the relationship between total quality management practices and performance of Public hospitals in Embu County.

5.2 Conclusion

This study examined the relationships between top management commitment, employee involvement, customer focus and performance of public hospitals in Embu County. From this study finding, this study concluded that top management was critical for performance. The study also found that top management in the hospitals under study was willing to commit organizational resource in supporting total quality management. Results also indicated that institutional processes and procedures were standardized to meet total quality management requirements. The study also concluded that customer focus was critical for organizational performance. The results indicated that the organization always attempted to meet its customer needs, address customer's complaints as a priority for the organization, the organization actively performed market research to identify customer needs and that the organization provided clear channels of communication to its customers.

With regard to the participation of workers, this study concluded that employee participation had a direct relationship with corporate performance. Employees have been active in decision taking within their respective organizations, employees are given appropriate preparation for their duties and there has been a strong line of contact between employees and senior management who have listened to their opinions and have facilitated staff working together.

5.3 Recommendations

This study suggests the use of a complete quality management model for both hospitals and organizations as overall quality management activities (top management, customer focus and Employee Involvement) have had beneficial effects on the

efficiency of public hospitals in Embu County. In order to increase the level of the management of the profession and ultimately, improved organizational efficiency, this work also recommended that hospital management be aware of the importance of overall quality control practices for the efficiency of hospitals.

This study also suggests to hospital managers to undertake market research in order to find out consumer needs, have consistent channels for contact and deal with customer feedback in good time, as customer attention has an impact on organizational efficiency. This study further suggests that managers further raise the level of involvement of workers in the decision taking of their department and the flexibility of hospital quality procedures.

5.4 Suggestion for Further Research

This research suggests that future studies should check the impact of other fact-based policy and communication elements on the success of the organization which were not included in the analysis (process-centeredness, integral structure, continuous changes, strategic and systemic approach).

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