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## RELATIONSHIP BETWEEN SERVICE QUALITY AND OPERATIONAL PERFORMANCE OF PUBLIC HOSPITALS IN MOMBASA COUNTY, KENYA

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### Abstract

The study aimed at establishing service quality dimensions perception by customers by determining their relationship with operational performance of public hospitals in Mombasa County. The study adopted a survey design by using cross-sectional approach to data collection. The population of study was 24,688 which was the average monthly cumulative patients seen in the public hospitals in Mombasa County which included a tier-5, tier-4 and tier-3 hospitals. Proportionate stratified sampling was used to determine the sample size. The study used primary data which was collected from patients using a structured questionnaire with 252 questionnaires completed and data collected used for analysis. The study found that hospital tangibles, service assurance, service reliability, empathy of services and service responsiveness were perceived to be not so good. The study found that services offered by hospitals were generally perceived by customers to be poor, had long waiting times to see doctors and for laboratory tests and challenges in communication skills and relationships between patients and medical staff which affected service quality perception. The study found out that there was a relatively critical relationship between service quality and operational performance. Service quality dimensions, reliability, responsiveness, empathy, assurance and tangibles all had a significant positive relationship with operational performance. The study showed that there is a significant positive relationship between service quality and operational performance with an increase in service quality resulting in increased

*operational performance. The study recommended that hospital equipment needed to be upgraded and sufficient drugs supplied for these hospitals. Training of human resource on customer relationship was also identified to be of critical concern.*

**Key terms:** Operational Performance, Service Quality, Health Service Quality

### **Background of the Study**

Organizations are using quality as a competitive advantage to gain and maintain market share, increase return on investments, reduce cost and improve organizational performance, (Rapert & Wren, 1998). Quality is key in determining consumer's choice in products and services. Quality concept in services is complex and ambiguous due to difficulties in measuring and defining. Service quality is an attitude formed by customers about organizations products and services based on assessment of performed service in comparison to prior expectations of the firm offerings, (Parasuraman, Zeithaml & Berry, 1988). Services are intangible, heterogeneous, perishable and consumption and production is inseparable making service quality dependent on customer perception of performed service which includes the process and outcome of performed service compared to their prior expectations.

Service quality can be conceptualized in three theories; customer satisfaction theory, attribute theory and interaction theory, (Chase & Bowen, 1991). Customer satisfaction theory derived from Parasuraman, Zeithaml and Berry (1985) work examines service quality from customers' perception and experience of performed service compared to their expectations. A discrepancy between customers' perception of performed services and their anticipations means a gap in service quality exists. The second theory is attribute theory in which service quality is determined by the service provision system attributes with the assumption that management has a significant control of the input attributes that determine service quality. Service delivery systems require control and coordination to ensure provision of standardized services to all customers, (Weiner, 1985). The third theory is interaction theory where service quality arises when there is collective gain amongst customers and employees and all their needs are met and satisfied, (Klaus, 1985).

Health is an essential human right and attaining the utmost possible level is the greatest important universal social goal. Health is a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity Kenya's healthcare is provided by national teaching and referral hospitals, county hospitals, faith based hospitals, non-governmental hospitals and private hospitals. Healthcare in Kenya faces many challenges: insufficient health care workers and funding, poor information communication, poor service quality, poor management of healthcare, inequitable distribution of healthcare facilities, insufficient information to base policies and guidelines, and insufficient drugs and other medical supplies.

### **Service Quality**

Zeithaml (1988) defined service quality as customers' judgment of distinction or superiority of firm offerings. Parasuraman et al, 1988 defined quality of services as a gap

in consumer's expectations and perceived performance of the service .Firms have internal and external customers, and satisfaction of internal customers is the source of excellent quality as they are enabled to perform their tasks more effectively to achieve external customer satisfaction and retention, (Zairi, 2000).Therefore service quality can be defined as satisfying requirements and meeting anticipations of consumers, personnel and owners, (Edvardsson, 1998).

Service quality is a feasible competitive weapon for all firms, both manufacturing and service in the current business environment, (Quinn, Dorley& Paquette, 1990), due to application of technology whereby Organizations are moving from product oriented to service oriented operations strategies

### **Operational Performance**

Operations management is how efficiently and effectively an organization uses its resources to meet the expectations and needs of its customers. Operational performance measures are used to evaluate, control and improve operations processes to meet organization goals and performance targets against standards or prescribed indicators of efficiency, productivity, effectiveness, capacity utilization, perceived value of offerings and environmental obligations like cycle time, waste reduction and regulatory compliance. Operations performance has five basic objectives; quality, cost, reliability, speed and flexibility as key competitive priorities, (Slack, Chambers & Johnston, 2010).

### **Service Quality and Operational Performance**

Operational performance plays an important role in management of services, organization development and success. Service operations have to be based on customer preferences and taste and efficient to meet and exceed customer expectations, (Johnson, 1994). To compete strategically organizations have to implement and commit to service quality in all their operational processes. Service performance has two dimensions; operational oriented dimension that entails all activities executed by service personnel that lead to productivity, effectiveness and consistent quality; and interpersonal element that entails all activities that augment customer relationship, (Longenecker & Scazzero, 2000).

Service quality is measured by extent to which services delivered meet or exceed customer expectations. Gronroos (1984) proposed a model to measure quality of service using technical quality and functional quality components of the service process. Parasuraman et al, (1988) proposed SERVQUAL model that measures quality of service as a difference in perceived quality of service and anticipated quality of service in the firm offerings using five dimensions that describe service quality domain adequately. These dimensions include; tangibles, responsiveness, reliability, assurance and empathy. SERVPERF a perception only model based on SERVQUAL model attributes was found to be more efficient in explaining variation of service quality and purchase intentions in various service industries compared to SERVQUAL, (Cronin & Taylor, 1992).

### **Public Hospitals in Mombasa County**

Mombasa County is located in the coastal region of Kenya and is made up of six constituencies; Changamwe, Mvita, JomvuKuu, Likoni, Nyali and Kisauni. Healthcare in

Kenya is organized in a hierarchical system comprising of six tiers with KNH at the apex at tier 6 and community level at tier 1 to allow for referral of complicated cases to a higher level. The County has only five tiers of healthcare facilities; tier 1 refers to community level, tier 2 refers to dispensaries , tier 3 refers to sub-County hospitals and health centers , tier 4 refers to County hospitals and tier 5refers to regional referral hospital, (Ref. Appendix II). The facilities provide different levels of care; the regional referral hospital provides specialized care which includes intensive care, life support and specialized consultations; County hospitals provide comprehensive therapeutic and surgical services; sub-county hospital provide curative services with a surgery unit for caesarean sections; health centers and dispensaries provide basic curative care and community offers preventive care. Hospitals offer secondary and referral care with different cadres of personnel offering outpatient and inpatient services while health centers and dispensaries offer primary care with few personnel offering outpatient services only, (GoK, 2013).

### **Research Problem**

The study sought to fill the gap by linking specific service quality dimensions to operational performance. This study investigated perception of service quality dimensions by patients and their relationship with operational performance of public hospitals from customers' point of view.

### **Research Objectives**

The objectives of this study were,

- i. To establish perception of service quality by customers in public hospitals in Mombasa County.
- ii. To determine the relationship between service quality dimensions and operational performance of public hospitals in Mombasa County.

### **Data Analysis**

The data collected was cleaned, validated, and edited for accuracy, uniformity, consistency and completeness. Descriptive statistics, mean and standard deviation were used to determine the perception of quality of services by consumers. Correlation was used to investigate the relationship between quality of services and operational performance.

The regression model was as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

**Where:**

Y = Operations Performance Index (dependent variable)

$\beta_0$  = Constant

$\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$  and  $\beta_5$  are coefficients of tangibles dimension, reliability dimension, responsiveness dimension, assurance dimension and empathy dimension respectively.

$X_1$  = Total Value of Tangibles dimension score

$X_2$  = Total Value of Reliability dimension score

$X_3$  = Total Value of Responsiveness dimension score

$X_4$  = Total Value of Assurance in dimension score

$X_5$  = Total Value of Empathy in dimension score

$\epsilon$  = Error term

$\beta_1$ , represents the contribution of tangibles dimension variable,  $\beta_2$  represents the contribution of reliability dimension variable,  $\beta_3$  represents the contribution of responsiveness dimension variable,  $\beta_4$  represents the contribution of assurance dimension variable and  $\beta_5$  represents the contribution of empathy dimension variable to the overall operational performance of public hospitals in Mombasa County.

### **Findings and Interpretation**

This section presents analysis of data collected and the study results..

### **Response Rate**

**Table 1: Response Rate**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
Responded	252	72
Not responded	98	28
<b>Total</b>	<b>350</b>	<b>100</b>

The study targeted a sample of 350 respondents, 252 out of 350 sampled respondents completely filled in the questionnaire. This was a 72% response rate as showed in Table 1.

### **Demographic Information**

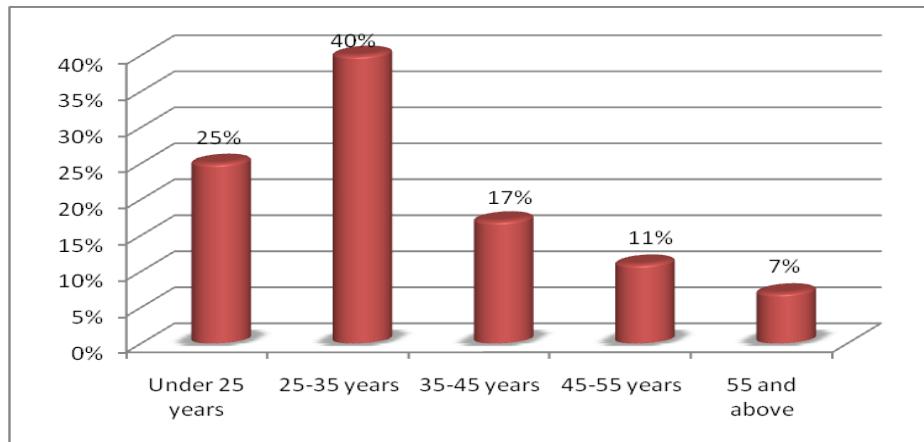
Gender of the Respondents

**Table 2: Gender Composition**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Female	147	58
Male	105	42
<b>Total</b>	<b>252</b>	<b>100</b>

It was evident from, Table 4.2 that there were more females as shown by 58% than males shown by 42% who visited the hospitals during the research period. This shows that both genders were represented in the study however; there was gender disparity as it is evident that majority of the patients who visited the public hospitals in Mombasa County were females.

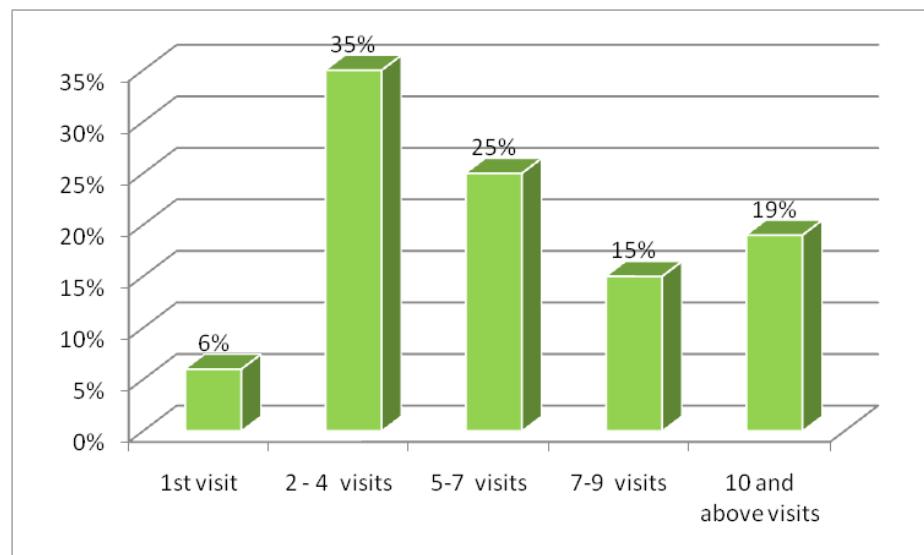
#### 4. Age of Respondents



**Figure 1: Distribution of Respondents by Age**

The results in Figure 1 above show that the majority of the respondents 40%, were between 25 and 35 years, 25% were under 25 years, 17% were between 35 and 45 years, 11% were between 45 and 55 years, while 7% were 55 and above. This indicates that majority of the patients who visited public hospitals were of youthful age.

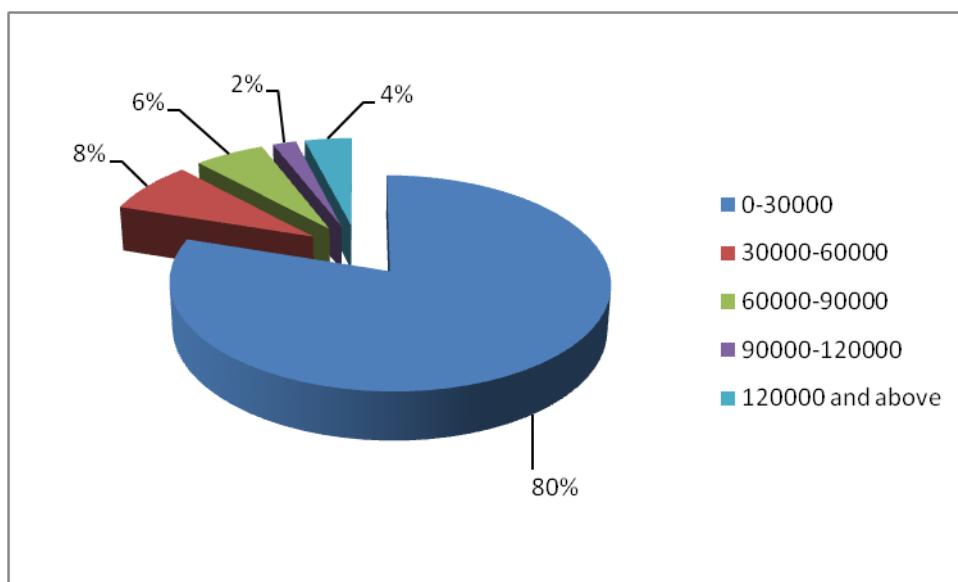
#### Number of Visiting Times



**Figure 2: Distribution of Respondents by Number of Visiting Times**

When the number of times respondents had visited the hospital was assessed, 35% had visited the hospital 2 to 4 times, 25% had visited the hospital 5 to 7 times, 19% had visited the hospital 10 times and above, 15% had visited the hospital 7 to 9 times while 6% had visited the hospital once as shown in Figure 4.2.

### Respondents Monthly Income



**Figure 3: Composition of Members by Their Monthly Income**

The study determined the respondents' monthly income as shown in Figure 4.3 above, 80% who were the majority earned between 0 and 30,000 shillings, 8% earned between 30,000 and 60,000 shillings, 6% earned between 60,000 and 90,000 shillings, 4% earned 120,000 shillings and above while 2% earned between 90000 and 120,000 shillings and above.

### Service Quality Dimensions

Service quality dimensions, hospital tangibles, service reliability, service responsiveness, empathy of services and service assurance were used to evaluate service quality perception.

### Hospital Tangibles

The respondents rated their perception of appearance of physical facilities of the hospital, up to date equipment, personal appearance of medical staff and visually appealing materials for provision of services.

**Table 3: Hospital Tangibles**

Tangibles	Mean	Std. Dev
The hospital has up to date physical facilities e.g. equipment, X-ray department, laboratories	1.57	.957
The physical facilities of the hospital are visually attractive e.g. reception area, wards and outpatient department	1.36	.917
Employees are neat in appearance e.g. well groomed, clean/ smart uniform	2.60	.849

Materials associated with services are visually attractive e.g. documentation, directions	1.62	.934
<b>Total</b>	<b>7.15</b>	<b>3.657</b>
<b>Average</b>	<b>1.79</b>	<b>0.91</b>

Table 3 shows that, perception of tangibles in the hospital was rated to a low extent as indicated by an overall mean of 1.79. The respondents perceived employees were neat in appearance and well groomed to a moderate extent ( $M=2.6$ ,  $SD=.849$ ) the materials associated with services were visually attractive to a low extent ( $M=1.62$ ,  $SD=.934$ ), physical facilities of the hospital as visually attractive to a low extent ( $M=1.36$ ,  $SD=0.917$ ), the hospital had up to date facilities to a low extent ( $M=1.57$ ,  $SD=0.957$ ), The results demonstrate that patients are not content with the physical facilities in the hospital.

### Service Reliability

The respondents rated their perception of hospital dependability, keeping their promises and timelines, service performance the first time, maintaining accurate records and their interest in solving customers' problems.

**Table 4: Service Reliability**

Reliability	Mean	Std.Dev
The hospital provides service at the time promised e.g. time of operation, investigation, medicine food	2.19	1.140
Hospital shows sincere interest in solving patients' problems	1.92	1.008
Hospital performs the service right the first time	2.17	1.097
Hospital maintains accurate records	1.93	.885
Hospital is dependable, it provides all services as promised	2.21	1.101
<b>Total</b>	<b>10.42</b>	<b>5.231</b>
<b>Average</b>	<b>2.08</b>	<b>1.05</b>

The study found that customers perceive the hospitals services to be unreliable, with a total mean of 2.08. The hospital was dependable, it provided all services as promised to a low extent ( $M=2.21$ ,  $SD=1.101$ ), the hospital provided services at the time assured e.g. time of operation, investigation, medicine food to a great extent ( $M=2.19$ ,  $SD=1.14$ ), the hospital performed the services right the first time to a great extent ( $M=2.17$ ,  $SD=1.097$ ), the hospital showed sincere interest in solving patients' problems to a low extent ( $M=1.92$ ,  $SD=1.008$ ) and customers perceived the hospital maintained accurate records to a great extent ( $M=1.93$ ,  $SD=.885$ ). The results show that patients perceive service reliability to be poor.

### Service Responsiveness

The respondents rated staff willingness to help patients, responding to patients' requests and provision of swift service by the hospital as below in table 4.5.

**Table 5: Service Responsiveness**

<b>Responsiveness</b>	<b>Mean</b>	<b>Std.Dev</b>
Staff tell patients precisely when services will be performed	1.99	1.129
Staff give prompt service to patients	1.96	1.116
Staff are always willing to help patients	1.96	.950
Staff readily respond to patients requests	2.12	1.065
<b>Total</b>	<b>8.03</b>	<b>4.26</b>
<b>Average</b>	<b>2.01</b>	<b>1.07</b>

The study established that experience and perception of the hospital responsiveness was rated to a low degree as indicated by a mean score of 2.01. The respondents were in agreement that; the staff readily responded to patients requests to a low extent ( $M= 2.12$ ,  $SD=1.065$ ), the staff told patients exactly when services were to be performed to a low extent ( $M=1.99$ ,  $SD=1.129$ ), staff were always willing to help customers to a low extent ( $M=1.96$ ,  $SD=.95$ ), the staff gave prompt service to patients to a low extent ( $M=1.96$ ,  $SD=1.116$ ). The results demonstrate that patients were not content with responsiveness of hospital services to their needs.

### **Service Assurance**

The respondents rated employees' ability to instill confidence and trust, their courtesy and their knowledge to answer questions as below in table 6

**Table 6: Service Assurance**

<b>Assurance</b>	<b>Mean</b>	<b>Std.Dev</b>
Employees instill confidence and trust in patients	1.96	.933
Patients feel safe when receiving medical treatment	1.62	.811
Employees are courteous	1.48	.953
Employees have the knowledge to answer patients questions	2.61	.996
<b>Total</b>	<b>7.67</b>	<b>3.693</b>
<b>Average</b>	<b>1.92</b>	<b>0.92</b>

The study found that patients' perception of service assurance in the hospital was rated to low degree as indicated by an average score of 1.92. The study found that the employees had the knowledge to answer patients questions to a moderate extent ( $M=2.61$ ,  $SD=.996$ ), employees instilled confidence and trust in patients to a low extent ( $M=1.96$ ,  $SD=.933$ ), patients felt safe when receiving medical treatment to a low extent ( $M=1.62$ ,  $SD=.811$ ), and employees were courteous to a low extent ( $M=1.48$ ,  $SD=.953$ ). The findings show patients were not content with service assurance.

## **Empathy in Services**

**Table 7: Empathy in Services**

<b>Empathy</b>	<b>Mean</b>	<b>Std.Dev</b>
Employees give patients individual attention	1.85	.968
Employees have patients best interest at heart	2.02	.957
Employees understand specific needs of patients	1.92	.819
Employees listen to patients and keep them informed	1.72	.627
The hospital has convenient operating hours for patients	1.84	.807
<b>Total</b>	<b>9.35</b>	<b>4.178</b>
<b>Average</b>	<b>1.87</b>	<b>0.84</b>

The study observed that experience and perception of empathy in the hospital was rated to low degree as indicated by a mean score of 1.87in that; employees had patients best interest at heart to a low extent ( $M= 2.02$ ,  $SD=.957$ ), employees understand specific needs of patients to a low extent ( $M=1.92$ ,  $SD=.819$ ), the employees gave patients individual attention to a low extent ( $M=1.85$ ,  $SD=.968$ ),the hospital had convenient operating hours for patients to a low extent ( $M= 1.84$ ,  $SD=.807$ ), and employees listened to patients and kept them informed to a low extent ( $M=1.72$ , $SD=.627$ ). These findings show that patients perceived empathy of services to be poor.

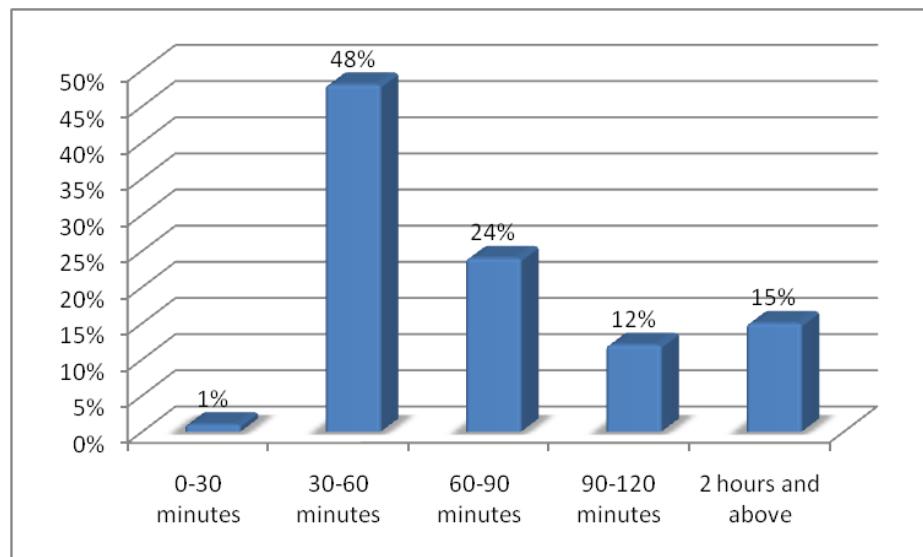
## **Dimensional Ranking of Service Quality**

**Table 8: Ranking of Service Quality Dimensions**

<b>Service Quality Dimension</b>	<b>Mean</b>	<b>Std. Dev</b>
Service Assurance	2.08	1.05
Empathy in services	2.01	1.07
Service Reliability	1.92	0.92
Service Responsiveness	1.87	0.84
Hospital Tangibles	1.79	0.91
<b>Total</b>	<b>9.67</b>	<b>4.79</b>
<b>Average</b>	<b>1.93</b>	<b>0.96</b>

Data from table 4.3 to 4.7 was extracted to form Table 4.8. The overall service quality was rated to a low extent with a mean of 1.93 which indicates service quality is poor. The aggregate means of the dimension were tabulated in a decreasing order. The standard deviation was tabulated to show disparity of respondents. According to the tabulated findings above, hospital tangibles, service assurance, service reliability, empathy of services and service responsiveness were perceived to be poor. Patients were not content or satisfied with hospital service quality and hospital tangibles was perceived as the worst feature of service quality.

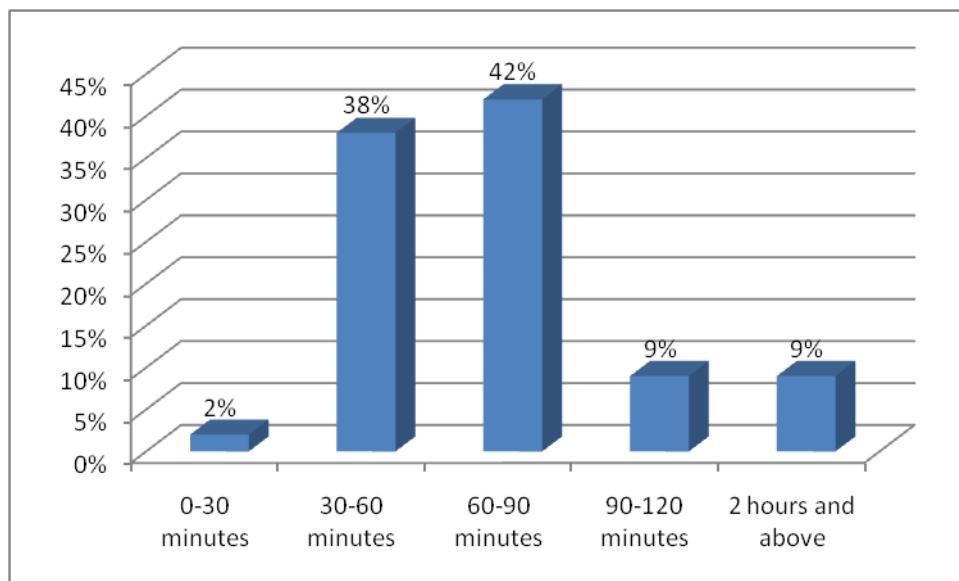
## Operational Performance



**Figure 4: Waiting Time for Consultation**

According to Figure 4, 48% of the respondents who were the majority had waited for 30 to 60 minutes to see the doctor, 24% had waited for 60 to 90 minutes to see the doctor, 15% had waited for 2 hours and above to see the doctor, 15% had waited for 90 to 120 minutes to see the doctor and 1% had waited for 0 to 30 minutes to see the doctor.

## Waiting Time for Laboratory Results



**Figure 5: Waiting Time for Laboratory Results**

According to **figure 5** 42% of the respondents who were the majority had waited for 60 to 90 minutes for laboratory results, 38% had waited for 30 to 60 minutes for laboratory

results, 9% had waited for 90 to 120 minutes, 9% had waited for 2 hours and above for laboratory results and 2% had waited for 0 to 30 minutes.

**Table 9: Relationship between Waiting Time and Service Quality**

		Waiting Time for Consultation	Waiting Time for Laboratory Results
<b>Service Reliability</b>	Pearson Correlation	-0.632**	-0.351**
	Sig. (2-tailed)	0.000	0.000
	N	252	252
<b>Empathy in Service</b>	Pearson Correlation	-0.468**	-0.211**
	Sig. (2-tailed)	0.000	0.000
	N	252	252
<b>Service Responsiveness</b>	Pearson Correlation	-0.667**	-0.354**
	Sig. (2-tailed)	0.000	0.000
	N	252	252
<b>Hospital Tangibility</b>	Pearson Correlation	-0.454**	-0.359**
	Sig. (2-tailed)	0.000	0.346
	N	252	252
<b>Service Assurance</b>	Pearson Correlation	-0.506**	-0.147*
	Sig. (2-tailed)	0.000	0.000
	N	252	252

\*\* Correlation is significant at  $p < 0.01$  significance level (2-tailed)

\* Correlation is significant at  $p < 0.05$  significance level (2-tailed)

The findings in table 4.9 show that waiting time to see the doctors has a negative significant relationship with all service quality dimensions. There is a negative and significant relationship between service reliability, service responsiveness, service assurance, empathy of services and hospital tangibles with waiting time to see doctors and for laboratory results. Waiting time to see the doctor has more effect on service quality perception than the waiting time for laboratory results.

**Table 10: Operational Performance**

	Mean	Std. Dev
The hospital offers excellent quality services	2.03	.881
The services offered by the hospital were satisfying and met my needs	1.95	.802
Better service quality can reduce waiting time to see the doctor and for laboratory and X – ray test results	4.11	1.112
I will recommend the use of the hospital services to my family and friends	1.89	.722
I received all services required for my treatment within the hospital	Drugs X-ray tests	1.55 .503 2.61 .476

	<b>Laboratory tests</b>	2.17	.421
Better service quality can make the hospital run smoothly		4.25	.688
The hospital offers unique and innovative services		1.93	.773
The cost of services in the hospital was reasonable and fair		1.93	.839
Better service quality can improve process efficiency		4.18	.649
<b>Total</b>		<b>28.6</b>	<b>7.866</b>
<b>Average</b>		<b>2.6</b>	<b>.7151</b>

The findings in Table 4.10 show that the hospitals operational performance was low ( $M=2.6$ ,  $SD=0.71$ ) in that; the hospital offers excellent quality services to a low extent ( $M=2.03$ ,  $SD= 0.881$ ), the services offered were satisfying and met the patients' needs to a low extent ( $M=1.95$ ,  $SD=0.802$ ), the hospital offers unique and innovative services to a low extent ( $M=1.93$  ,  $SD=0.773$ ), the cost of services in the hospital were reasonable and fair to a low extent ( $M=1.93$ ,  $SD= 0.839$ ).

The patients could recommend the use of the hospital services to their family and friends to a low extent ( $M=1.89$ ,  $SD=0.722$ ). The hospital experienced severe shortage of drugs ( $M=1.55$ ,  $SD= 0.503$ ) and laboratory test ( $M=2.17$ ,  $SD= 0.421$ ) but the access to x-ray tests was moderate ( $M=2.61$ ,  $SD=0.476$ ).Patients were in agreement that; better service quality can make the hospital run smoothly ( $M=4.22$ ,  $SD=0.671$ ), better service quality can improve process efficiency ( $M=4.18$ ,  $SD=0.649$  and that better service quality can reduce waiting time to see the doctor and for laboratory and x – ray test results ( $M=4.11$ ,  $SD=1.112$ ).

The findings above indicate that patients were not satisfied or content with the quality of services offered by the hospital and they did not meet all their needs. The quality of services was perceived to be poor and hospital charges were higher than anticipated by patients. Most patients did not receive all the services required for their treatment with most missing drugs and laboratory tests required for their treatment. Most patients would not recommend the use of the hospital services to their friends and families. Improving service quality will lead to process efficiency, make hospitals run effectively and reduce waiting time to see the doctor and for laboratory results.

The patients recommended that doctors should show interest in helping patients, offer individualized attention and improve their interpersonal and communication skills. Doctors should also be neatly dressed and avoid wearing "hijab" especially at the emergency department as it hinders communication. Insufficient staff lead to long waiting times and the patients felt more doctors needed to be employed to ensure patients were served promptly and sufficient specialist employed to handle complicated cases. The cost of consultations and treatment at the hospitals was high and needed to be reviewed. The study found out that drugs needed to be supplied in adequate amounts to hospital pharmacies to avoid patients being asked to buy drugs from outside the hospital. The hospital response to emergency cases needed to be improved to ensure urgent handling of

emergencies to reduce morbidity. Hospitals should ensure continuous supply of clean water and maintain lavatory cleanliness. More seats should be provided at the waiting bay to ensure patients' are comfortable as they wait to be served.

### **Correlation between Operational Performance and Service Quality Dimensions**

Pearson's correlation coefficient was used to establish the relationships between service quality dimensions (reliability, empathy, responsiveness, tangibility and assurance) and operational performance.

**Table11: Correlation between Operational Performance and Service Quality Dimensions**

		<b>Operational Performance</b>
<b>Service Reliability</b>	Pearson Correlation	0.393**
	Sig. (2-tailed)	0.000
	N	252
<b>Empathy in Service</b>	Pearson Correlation	0.442**
	Sig. (2-tailed)	0.000
	N	252
<b>Service Responsiveness</b>	Pearson Correlation	0.408**
	Sig. (2-tailed)	0.000
	N	252
<b>Hospital Tangibility</b>	Pearson Correlation	0.060
	Sig. (2-tailed)	0.346
	N	252
<b>Service Assurance</b>	Pearson Correlation	0.546**
	Sig. (2-tailed)	0.000
	N	252

\*\* Correlation is significant at p <0.01 significance level (2-tailed)

As presented in Table 4.11 above there is a positive and insignificant relation between hospital tangibles and operational performance (Pearson correlation=0.060 and p<0.346). The results show that there was a positive and significant relation between service reliability and operational performance (Pearson correlation=0.393 and p<0.000).

The correlation between empathy in services and operational performance is positive and significant (Pearson correlation =0.442 and p<0.000). The correlation between service responsiveness and operational performance is significant and positive (Pearson correlation=0.408 and p<0.000). Service assurance had a positive and significant relation with operational performance (Pearson correlation=0.546 and p<0.000). Results in table 4.10 shows there is a positive and significant relation between operational performance and all service quality dimensions however hospital tangibles had an insignificant relationship.

### **Regression Analysis of the Model**

A multiple linear regression analysis was conducted to evaluate the relationship between the dependent factor operational performance and service quality dimensions: hospital

tangibles, service reliability, service responsiveness, service assurance and empathy in services.

The regression equation was

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

**Table 12: Model Summary**

Model	R	R Square	Adjusted R Square	Standard Error of the estimate
1	0.684 <sup>a</sup>	0.468	0.457	0.39002

- a) Predictors: (Constant), Hospitals tangibles, service reliability, service responsiveness, service assurance and empathy in services
- b) Dependent variable: Operations performance

Coefficient of determination  $R^2$  was used to show how operations performance varied with total value of hospital tangibles score, service reliability score, service responsiveness score, service assurance score and empathy of services score. These five service quality variables studied explained 46.8% of the variables that affect operations performance as represented by R Squared (Coefficient of determination). Thus other aspects that were not studied contribute to 53.2% of the variables that influence operations performance.

**Table13: ANOVA Table**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	<b>Regression</b>	32.954	5	6.591	43.327	.000 <sup>a</sup>
	<b>Residual</b>	37.421	247	0.152		
	<b>Total</b>	<b>70.375</b>	<b>252</b>			

- a) Predictors: (Constant), Total value of hospital tangibles score, service reliability score, service responsiveness score, service assurance score and empathy in services score.
- b) Dependent Variable: Operations performance

ANOVA was used in the study to evaluate the regression model significance, an f-significance value of p less than 0.05 (that is .000) was computed. The model can thus be said to be statistically significant in predicting how hospital tangibles, service reliability, service responsiveness, service assurance and empathy of services affect operations performance.

This illustrates that the regression model has a less than 0.05 chance or likelihood of giving a wrong estimate or computation. This result of 0.000 shows that the model portrays a 95% and above confidence level thus the results have a high reliability.

**Table 14: Coefficients Results**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.304	.091		14.259	.000
Hospital tangibles	0.027	.085	.047	.317	.752
Service reliability	0.538	.067	.696	7.967	.000
Service responsiveness	0.251	.078	.464	3.221	.001
Service assurance	0.310	.067	.394	4.594	.000
Empathy of services	0.193	.060	.212	3.196	.002

- a) Predictors: (Constant), hospitals tangibles, service reliability, service responsiveness, service assurance and empathy in services  
b) Dependent Variable: Operations performance

The regression equation was

$$Y = 1.304 + 0.027X_1 + 0.538X_2 + 0.251X_3 + 0.310X_4 + 0.193X_5 + \epsilon$$

Where Y = Dependent (Operational Performance)

$X_1$  = Total Value of hospital tangibles score

$X_2$  = Total value of service reliability score

$X_3$  = Total Value of service responsiveness score

$X_4$  = Total Value of service assurance score

$X_5$  = Total Value of empathy in services score

$\epsilon$  = Error term

From the above regression equation holding all factors (hospitals tangibles, service reliability, service responsiveness, service assurance and empathy in services) constant, other factors affecting operations performance will be 1.304. This depicts that when all other service quality variables are at zero, a unit rise in hospital tangibles will influence operations performance by a score of 0.027; a unit rise in service reliability will influence operations performance by a score of 0.538; a unit rise in empathy in services will influence operations performance by a score of 0.193; a unit increase in service responsiveness score will influence operations performance by a score of 0.251; and a unit increase in service assurance will influence operations performance by a score of 0.310. This infers that service reliability influences the operations performance most trailed by total value of service assurance, service responsiveness and empathy of services with hospital tangibles having the least influence.

Results above show that there is a significant relationship between operations performance and the service quality variables; service reliability ( $p=0.000 < 0.05$ ), service responsiveness ( $p=0.001 < 0.05$ ), service assurance ( $p=0.000 < 0.05$ ) and empathy in services ( $p=0.002 < 0.05$ ) as illustrated by the p values with hospital tangibles having an insignificant relationship with operational performance ( $p=0.00 > 0.05$ ).

### **Relationship between Operational Performance and Service Quality**

This was assessed using the Pearson correlation.

**Table 15: Correlations between Operational Performance and Service Quality**

		<b>Operational Performance</b>	<b>Service Quality</b>
<b>Operational performance</b>	Pearson Correlation	1	0.406**
	Sig. (2-tailed)		0.000
	N	252	252
<b>Service quality</b>	Pearson Correlation	0.406**	1
	Sig. (2-tailed)	0.000	
	N	252	252

As shown in Table15, there is a positive significant relationship between service quality and operational performance, with a correlation coefficient of R squared = 0.406. This depicts that there is a shared association between service quality and operational performance, and the correlation coefficient R squared = 0.406 is at the 0.01 level (2-tailed). Thus it can be concluded that the relation is positive, connoting that service quality increase would result in higher operational performance.

### **Summary, Findings and Conclusions**

This section provides the summary of findings from chapter four, and also gives the study conclusions and recommendations based on the objectives of the study. The study established that perception of service assurance in the hospital was rated to a low extent as indicated by the average score of 2.08. Empathy of services in the hospital was rated to a low extent as shown by the average score of 2.01. The study found that perception of service reliability in the hospital was rated to a low extent as showed by the average score of 1.92. The study also established that perception of service responsiveness in the hospital was rated to low extent as shown by the average score of 1.87 and perception of hospital tangibles was rated to a low extent as showed by the average score of 1.79. The study found that service assurance, service reliability, empathy of services and hospital tangibles was perceived to be poor. Patients were not content or satisfied with hospital service quality with hospital tangibles perceived as the worst feature of service quality. The overall service quality was rated to a low extent with a mean of 1.93 which indicates service quality is poor.

From the findings it was found that (48%) of the respondents had waited for 30 to 60 minutes to see the doctor and (42%) had waited for 60 to 90 minutes for laboratory results. The waiting time to see the doctors has a negative significant relationship with all service quality dimensions. There is a negative and significant relationship between service reliability, service responsiveness, service assurance, empathy of services and hospital tangibles with waiting time to see doctors and for laboratory results. Waiting

time to see the doctor has more effect on service quality perception than the waiting time for laboratory results.

The findings indicate that patients were not satisfied or content with the quality of services offered by the hospital and they did not meet all their needs. The quality of services was perceived to be poor and the hospitals services were not unique nor innovative with hospital charges being higher than anticipated by patients. Most patients did not receive all the services required for their treatment with most missing drugs and laboratory tests required for their treatment. X-ray tests were available to a moderate extent. Most patients would not recommend the use of the hospital services to their friends and families. Improving service quality will lead to process efficiency, make hospitals run effectively and reduce waiting time to see the doctor and for laboratory results.

The correlation findings show that there is a positive and insignificant relation between hospital tangibles and operational performance (Pearson correlation=0.060 and p<0.346), there was a positive and significant relation between service reliability and operational performance (Pearson correlation=0.393 and p<0.000), empathy in services and operational performance is positive and significant (Pearson correlation =0.442 and p<0.000), correlation between service responsiveness and operational performance is significant and positive (Pearson correlation=0.408 and p<0.000) and service assurance had a positive and significant relation with operational performance (Pearson correlation=0.546 and p<0.000). This depicts there is a positive and significant relation between operational performance and all service quality dimensions however hospital tangibles has a positive insignificant relationship with operational performance as p values suggest.

From the regression equation holding all factors (hospital tangibles, service reliability, service responsiveness, service assurance and empathy in services) constant, other factors affecting operations performance will be 1.304. This depicts that when all other service quality variables are at zero, a unit rise in hospital tangibles will influence operations performance by a score of 0.027; a unit rise in service reliability will influence operations performance by a score of 0.538; a unit rise in empathy in services will influence operations performance by a score of 0.193; a unit increase in service responsiveness score will influence operations performance by a score of 0.251; and a unit increase in service assurance will influence operations performance by a score of 0.310. This infers that service reliability influences the operations performance most trailed by total value of service assurance, service responsiveness and empathy of services with hospital tangibles having the least influence.

The study finally found that there is a positive significant relationship between service quality and operational performance, with a correlation coefficient of R squared = 0.406. This depicts that there is a shared association between service quality and operational performance, and the correlation coefficient R squared = 0.406 is at the 0.01 level (2-tailed). Thus it can be concluded that the relation is positive, connoting that service quality increase would result in higher operational performance.

## Conclusion

From the findings majority of the patients (42%) earned between 0 and 30,000 shillings this shows that majority of the patients who attended the public hospitals were in low income class since they were not categorized among the middle class (salary of above Kshs 80,000/-). The current study findings indicate hospital tangibles, service assurance, empathy in services, service reliability and service responsiveness were all perceived to be poor and patients were not content with hospital services quality. Hospital tangibles was perceived as the worst feature of public hospitals. The overall perception of service quality was poor hence improvement required to improve service quality perception. The study concurs with Youssef et al, (1995) findings in the UK where patient anticipations before admission and their perception after release from hospital failed to meet their expectations in hospital tangibles, service reliability, service responsiveness, service assurance and empathy of services.

The study findings indicate that patients waited for almost an hour for consultations, more than one hour for laboratory results which had a significant influence on perception of service quality which declined with higher waiting time. The waiting time to see the doctor had more effects on service quality perception than waiting time for laboratory results. Long waiting time affected patient satisfaction, loyalty and image of public hospitals,(Chahal & Kumari, 2012). The study found out that most patients did not receive all the drugs, laboratory tests and X-ray tests required for treatment within the hospital and that they were asked to buy their own drugs and access laboratory and X-Ray tests elsewhere which is consistent with KACC (2010) findings that hospitals didn't have sufficient medical supplies with patients being asked to buy their own drugs and equipment to access healthcare.

Employees' communication skills and relationship with patients needed to be improved to enhance service quality provision which concurs with Taner and Antony (2006) findings that lack of communication between patients and healthcare workers had detrimental effects on service quality, communication is the least practiced dimension in public hospitals in Mombasa County.

Speed of delivery is critical in choosing goods and services and its' greatly affected by speed of decision making and flow of materials and information in all operations involved in product or service production, (Slack el, 2010) thus need to reduce waiting time for patients' consultation, standardize procedures, ensure effective diagnostics and efficient reporting systems

The study showed that there is a significant positive relationship between service quality and operational performance with an increase in service quality resulting in increased operational performance.

## Recommendations

The study recommends that X-ray and laboratory equipment need to be upgraded and sufficient drugs supplied for public sector hospitals. Sufficient and proficient personnel needed to be employed and training provided for different disciplines and cadres to provide and sustain high levels of service quality and to attract highly qualified specialist

and that response to emergencies should be swift and sufficient so as to create a positive image on patients and the hospital management

### **Conclusion**

Further research may be carried out in other diverse regions in the country like the North Eastern region where there are limited medical resources in order to stimulate a comparative study and also to establish the relationship between service quality and health outcomes such as length of stay, emergency department use, number of days before readmission to hospital, hospital acquired infections, morbidity and mortality.

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