A STUDY ON SERVICE QUALITY IN HEALTHCARE: A COMPARATIVE STUDY ON PUBLIC AND PRIVATE HOSPITALS IN TRIVANDRUM

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Abstract
In this era of globalisation health care has been rapidly evolving and has become highly competitive like other service industries. The concern for service quality grows when competition becomes more intense and environmental factors become more adverse. Service quality reflects at each service encounters. In the health care industry, patient observations are a focal point of service quality. The expectations and perceptions of patients may vary based on the social, cultural, and economic conditions in which they live. The quality of service decides the existence of a service provider in the medical industry. This study aims to assess whether private sector hospitals or public sector hospitals are providing better quality services in Trivandrum district. In the study, primary data is collected through structured questionnaire, which was administered to the respondents. Statistical tools such as percentage analysis and Chi-square test have been applied for analysing the data. This study reveals that comparatively the physical evidence and the quality of the service personnel are better in private hospitals than in public ones.

Key Words: Service Quality, Physical Evidence, Stratified Random Sampling.

Introduction
In an overpopulated country like India where a majority of the population is found below the poverty line, hospitals play an important role. In service industries, the service quality has become one of the prime factors for the enhancement ofcustomer relationship and value creation in the market. Every organization tried to gain competitiveadvantage in order to become driving force in the market. The trend of globalisation andcommercialisation increasing day by day so it changed the demand of customers and they expect highquality products and services those create competitive environment among various sectors.

Hospitals bear the responsibility of serving the masses, protecting the precious endowment and even safeguarding their own interests by enriching the medicare facilities and building a positive image. Creation of a hospital system which encompasses patients, doctors and nurses in a syncretic totality is a crying need of the hour. It is an organisation that mobilises the skills and efforts of widely divergent group of professionals, semi-professionals and non-professionals so as to provide highly personalised services to individual patients.

The aim of the study is to find out customer preference for healthcare services delivered by both public and private hospitals in Trivandrum, the capital of Kerala. For this purpose the extended 3P's of service marketing mix i.e.; people, process and physical evidence were analysed to measure patients' perception about service quality delivered by both public and private hospitals.

Objectives of the Study
1. To study about the quality of the supporting and facilitating services provided by both private and public hospitals and compare their services.
2. To analyse the opinion of the respondents about the service quality of personnel in private sector and public sector hospitals in Trivandrum.
3. To examine the opinion of patients regarding tangibles (physical evidence) of the hospitals and to identify how the tangibles affect the service quality of hospitals.

Limitations of the Study
1. Most of the patients are not cooperate with the study.
2. The result depends on the answer received from respondents which may be biased.
3. The survey is restricted to the major hospitals in Trivandrum. So the result of the study reflects only the opinion of patients from the selected hospitals.

Health Industry Background
Hospital is a complex organisation because multi-faceted developments in the society have made the users more conscious of their rights. The prospects demand modern and the best possible means of medical care and health education. They want everything within and beyond the four walls of the hospital. Hospital is considered to be a social institution for delivering healthcare, offering considerable advantages to both patient and society. It is a place for the diagnosis and treatment of human ills and restoration of health and wellbeing of those temporarily deprived of.

Kerala's achievements in the health sector have been often cited as role models for the country. Some of its health indices match with that of the developed countries. The State has a better health standard with low birth and death rate, rapidly declining growth rate, high level of acceptance of family planning methods and increased life expectancy. While providing quality healthcare affordable and acceptable to all, the State is also focused on prevention, control and management of communicable, non-communicable and lifestyle diseases, disaster management, healthy pollution-free environment, making the public aware on the need to identify health needs and utilize health services by implementing various national health programmes.

The availability of facilities for primary health care, their accessibility, the very high degree of awareness and acceptability among the people has made Kerala model an almost perfect one. What is needed at present is to sustain these by the personnel involved with the active participation and co-operation of the people. With the effective involvement of the private sector, which plays a major role in the health sector and with the effects of voluntary organisations this task though throws a challenge is attainable.

Review of Literature
Saeed Hosseini Teshnizi,TeamurAghamolaei,KobraKahnouji,SeyyedMehrdad Hosseini Teshniziand Jalil Ghani (2018) conducted a study titled "Assessing quality of health services with the SERVQUAL model in Iran: A systematic review and meta-analysis". This study aimed to assess the quality of health services in Iran through a meta-analysis of all Iranian studies which used the SERVQUAL tool.All dimensions of service quality were negative, which implies that the quality of health services in Iran has not been satisfying to patients and needs to be improved.

Muhammad Shafiq, Muhammad AzharNaeem, ZartashaMunawar, MS and Iram Fatima (2017) conducted a study titled "Service Quality Assessment of Hospitals in Asian Context: An Empirical Evidence from Pakistan".This study adapted the SERVQUAL instrument to develop a service quality measurement scale. Data were collected from inpatients and outpatients at 9 different hospitals, and the scale was developed using structural equation modelling. The findings indicated that all 5 dimensions of SERVQUAL are valid in Asian countries such as Pakistan, with 13 items retained. Reliability, tangibility, responsiveness, empathy, and assurance were ranked first, second, third, fourth, and fifth, respectively, in terms of the size of the quality gap. The gaps were statistically significant, with values $.05$; therefore, hospital administrators must focus on each of these areas. By focusing on the identified areas of improvement, health care authorities, managers, practitioners, and decision makers can bring substantial change within hospitals.

Muhammad Nawaz, Bina Nazir, Mehwish Jamil, Junaid Aftab and MadeehaRazzaq (2016) conducted a work on "Service Quality in Public and Private Hospitals in Pakistan: An Analysis Using SERVQUAL Model". The objective of the study was to examine patient satisfaction in the public and private hospitals using the SERVQUAL model in Pakistan. Self-administered questionnaire was used to measure the satisfaction level of the patients in which patient satisfaction was measured on the basis of five dimensions such as empathy, responsiveness, tangibility, reliability and assurance. The findings of this study reveals, all the dimension of SERVQUAL model are significantly related with the patient satisfaction, in addition it also signified that there is a significant difference among public & private sector hospitals in terms of patient satisfaction. So, to improve service quality of hospitals, all the service quality dimensions needed to be improved. The more improved and hygienic physical accessories will improve patients' satisfaction. Reliable service will enhance patient's satisfaction and they will contact same hospital every time they face health issue. More attention and empathy will enhance patient's satisfaction and trust. The study concludes with managerial implications and future directions.

Research Methodology
Sources of Data
1. Primary data: Primary data is the data collected by the investigator himself for the first time by any specific enquiry or study. Primary data is collected using a questionnaire.
2. Secondary data: Secondary data is from books, periodicals, published reports and from the website of the particular hospitals and also conducting a survey throughout the patients of hospitals.

Sample Design
1. **Population:** The total population of the study are the patients of various private and public hospitals in Trivandrum.
2. **Sampling Size:** The total respondents of the study are 300 patients, of which 150 are from private hospitals and 150 of them are from public hospitals.
3. **Sampling Method:** Stratified random sampling, i.e. selecting the equal number of patients from the selected private and public hospitals in Trivandrum.

Tools Used For Data Analysis and Data Representation
For the analysis part percentage analysis, standard deviation and chi-square test are used. The tools used for data representation is charts.

Percentage Analysis
Percentage analysis is the method to represent raw streams of data as a percentage for better understanding of collected data. Percentage Analysis is applied to create a contingency table from the frequency distribution and represent the collected data for better understanding.

$$\text{Percentage of Respondents} = \frac{\text{No. of Respondent}}{\text{Total Respondents}} \times 100$$

Hypothesis
According to Goode and Hatt, "Hypothesis is a proposition, which can be put to test to determine validity".A hypothesis can be defined as a logically conjectured relationship between two or more variables expressed in the form of testable statement.

Null Hypothesis (H0)
Null hypothesis is formulated only to test whether there is any relationship between variables related to the problem being studied. Usually the null hypothesis is formed as a negative statement.

Alternate Hypothesis (H$_1$)
Alternate Hypothesis (H$_1$) is a statement, which is accepted after the null hypothesis is rejected based on the test result. The alternate hypothesis usually is formed as a positive statement.

Chi-Square Test
Chi-square is a statistical test commonly used to compare observed data with data we would expect to obtain according to a specific hypothesis.

$$x^2 = (O_i - E_i)^2 / E_i$$

Data Analysis
Comparison Regarding Physical Evidence

Table Showing The Comparison About Physical Evidence

Opinion	Private hospital	Percentage	Public hospital	Percentage	Total
Excellent	79	52.67	16	10.67	95
Very good	54	36.00	37	24.67	91
Good	10	6.67	51	34.00	61
Average	7	4.67	46	30.67	53
Poor	0	0.00	0	0.00	0
Total	150	100	150	100	300

Interpretation
The above table shows that 52.67% of the respondents from private hospitals opted excellent, 54% opted very good, 10% good, and 7% opined average about the physical evidence existing in the hospital. Majority, i.e., 34% of the respondents

from public hospitals opined good, 30.67% opted for average, 24.67% opined very good and 10.67% opted for excellent. Comparatively private hospitals have betterphysical evidence than the public hospitals.

Null Hypothesis (H₀): There is no significant difference between private and public hospitals regarding the physical evidence (tangibles).
H0: 1= 2

Alternative Hypothesis (H₁): There is significant difference between private and public hospitals regarding the physical evidence (tangibles).
H0: 1 2

Standard Deviation Table For Comparing Service Quality Of Personnel

Opinion	Private hospital	x-x	(x-x)2	Public hospital	x-x	(x-x)2
Excellent	79	49	2401	16	-14	196
Very good	54	24	576	37	7	49
Good	10	-20	400	51	21	441
Average	7	-23	529	46	16	256
Poor	0	-30	900	0	-30	900
Total	150		4806	150		1842

$x1 = x/N = 150/5 = 30$ $x2 = x/N = 150/5 = 30$

$$1 = \frac{\sqrt{\Sigma(x-\bar{x})^2}}{N}$$
$$= \sqrt{4806/5}$$
$$= 31$$

$$2 = \frac{\sqrt{\Sigma(x-\bar{x})^2}}{N}$$
$$= \sqrt{1842/5}$$

Table For Calculation of Expected Frequency

Oi	Ei	Oi - Ei	(Oi – Ei)2	(Oi – Ei)2/Ei
79	47.5	31.5	992.25	20.89
54	45.5	8.5	72.25	1.59
10	30.5	-20.5	420.25	13.78
7	26.5	-19.5	380.25	14.35
0	0	0	0	0.00
16	47.5	-31.5	992.25	20.89
37	45.5	-8.5	72.25	1.59
51	30.5	20.5	420.25	13.78
46	26.5	19.5	380.25	14.35
0	0	0	0	0.00
(Oi – Ei)2/Ei				101.21

Chi Square calculated value = 101.21
Degree of freedom = 9
From the table, chi square value = 16.919
$X^2 = 101.21 > 16.919$

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Intrepretation
Since the calculated value is more than the table value,**null hypothesis is rejected** at 5% level of significance. Thus it signifies that there is significant relationship between private and public hospitals regarding physical evidence.

Table Showing The Comparison About Supporting And Facilitating Services Provided

Opinion	Private hospital	Percentage	Public hospital	Percentage	Total
Excellent	21	14.00	73	48.67	94
Very good	18	12.00	29	19.33	47
Good	33	22.00	27	18.00	60
Average	35	23.33	12	8.00	47
Poor	43	28.67	9	6.00	52
Total	150	100	150	100	300

Interpretation
The above table indicates that 28.67 percent respondents were of the opinion that the supporting and facilitating services providedoffered by private hospitals was poor and 48.67 percent respondents were of the opinion that the assistance provided by public hospitals was excellent. By analysing the data it is understood that public hospitals are better in offering supporting and facilitating services than private hospitals.

Hypothesis
Null Hypothesis (H$_0$): There is no significant difference between private and public hospitals regarding supporting and facilitating services provided.
H0: 1= 2

Alternative Hypothesis (**H$_1$**): There is significant difference between private and public hospitals regarding supporting and facilitating services provided.
H0: 1 2

Standard Deviation Table For Comparing Supporting And Facilitating Services

Opinion	Private hospital	x-x	(x-x)2	Public hospital	x-x	(x-x)2
Excellent	21	-9	81	73	43	1849
Very good	18	-12	144	29	-1	1
Good	33	3	9	27	-3	9
Average	35	5	25	12	-18	324
Poor	43	13	169	9	-21	441
Total	150		428	150		2624

x1= x/N=150/5=30

x2= x/N=150/5=30

$$1 = \frac{\sqrt{\Sigma(x-\bar{x})^2}}{N}$$

$$2 = \frac{\sqrt{\Sigma(x-\bar{x})^2}}{N}$$

$$= \sqrt{428/5}$$

$$= \sqrt{2624/5}$$

$$=9.25$$

$$= 22.9$$

Table For Calculation of Expected Frequency

O_i	E_i	$O_i - E_i$	$(O_i - E_i)^2$	$(O_i - E_i)^2/E_i$
21	47	-26	676	14.38
18	23.5	-5.5	30.25	1.29
33	30	3	9	0.30
35	23.5	11.5	132.25	5.63
43	26	17	289	11.12
73	47	26	676	14.38
29	23.5	5.5	30.25	1.29
27	30	-3	9	0.30
12	23.5	-11.5	132.25	5.63
9	26	-17	289	11.12
$(O_i - E_i)^2/E_i$				**65.43**

Chi Square calculated value =65.43
Degree of freedom = 9
From the table, chi square value = 16.919
X^2 =65.43 > 16.919

Intrepretation
Since the calculated value is more than the table value,**null hypothesis is rejected** at 5% level of significance. Thus it signifies that there is significant relationship between private and public hospitals regarding physical evidence.

Table Showing The Comparison About Service Quality of Hospital Personnel

Opinion	Private hospital	Percentage	Public hospital	Percentage	Total
Excellent	85	56.67	30	20.00	115
Very good	32	21.33	22	14.67	54
Good	29	19.33	18	12.00	47
Average	3	2.00	49	32.67	52
Poor	1	0.67	31	20.67	32
Total	150	100	150	100	300

Interpretation
The table shows that 85 (56.67%) respondents were of the opinion that the services of personnel in private hospitals were excellent and 49 (32.67%) respondents rated the service of employees in public hospitals as average. Therefore it can be inferred that better quality service from employees is available in private hospitals than in public hospitals.

Hypothesis
Null Hypothesis (H_0): There is no significant difference between private and public hospitals regarding the service quality provided by the personnel.
H0: 1= 2

Alternative Hypothesis (**H_1**): There is significant difference between private and public hospitals regarding the service quality provided by the personnel.
H0: 1 2

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Standard Deviation Table For Comparing Service Quality of Personnel

Opinion	Private hospital	x-x	(x-x)2	Public hospital	x-x	(x-x)2
Excellent	85	55	3025	30	0	0
Very good	32	2	4	22	-8	64
Good	29	-1	1	18	-12	144
Average	3	-27	729	49	19	361
Poor	1	-29	841	31	1	1
Total	150		4600	150		570

x1= x/N=150/5=30   x2= x/N=150/5=30

$$1 = \frac{\sqrt{\Sigma(x-\bar{x})^2}}{N} \qquad\qquad\qquad 2 = \frac{\sqrt{\Sigma(x-\bar{x})^2}}{N}$$

$$= \sqrt{4600/5} \qquad\qquad\qquad\qquad\qquad = \sqrt{570/5}$$

Table For Calculation of Expected Frequency

O_i	E_i	$O_i . E_i$	$(O_i - E_i)^2$	$(O_i - E_i)^2/E_i$
85	57.5	27.5	756.25	13.15
32	27	5	25	0.93
29	23.5	5.5	30.25	1.29
3	26	-23	529	20.35
1	16	-15	225	14.06
30	57.5	-27.5	756.25	13.15
22	27	-5	25	0.93
18	23.5	-5.5	30.25	1.29
49	26	23	529	20.35
31	16	15	225	14.06
$(O_i - E_i)^2/E_i$				**99.55**

Chi Square calculated value = 99.55
Degree of freedom = 9
From the table, chi square value = 16.919
$X^2 = 99.55 > 16.919$

Intrepretation
Since the calculated value is more than the table value,**null hypothesis is rejected** at 5% level of significance. Thus it signifies that there is significant relationship between private and public hospitals regarding quality of service personnel.

Findings
1. 48% of the respondents opted public hospitals because of the reasonable cost of services and 44% of the respondents prefer private hospitals because of the good quality service provided by them.
2. In private hospitals we can see the availability of excellent modern medical equipment and tools.Comparatively private hospitals have better physical evidence than the public ones.
3. By analysing the data it is understood that public hospitals are better in providingsupporting and facilitating services than private hospitals.
4. It can be inferred that better quality service from employees is available in private hospitalsthan in public hospitals.

Suggestions
For Public Hospitals
1. Avail the best service of the best doctors and para medical staff in public hospitals.The behaviour of service personnel in hospitals should be more polite to avoid the dissatisfaction of patients.
2. The Government should take necessary steps for making public health care institutions especially government hospitals, people friendly by improving their basic infrastructure. Facilitate with hygienic and spacious wards, rooms, beds and toilets.

For Private Hospitals
1. Along with providing good quality of services, try to minimise the cost.
2. Avail lifesaving medicines from the hospital concerned on moderate rates.
3. Improve the facilities and reduce the cost of services so that more people get access to good treatment.

Conclusion
Healthcare industry is a specific representative of the service industry that regards quality as a fundamental value of medical care. To manage quality within the healthcare settings is a challenging task due to its complexity.This study compared the quality of services provided by private and public hospitals in Trivandrum district. It can be inferred that significant variation exists between private hospitals and public hospitals, and that this is due to a number of factors related to the service quality of the treatment delivered.

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