A STUDY ON MEDICAL SERVICE QUALITY AND ITS INFLUENCE UPON LEVEL OF PATIENT SATISFACTION WITH SPECIAL REFERENCE TO SELECTED MAJOR MULTI-SPECIALTY HOSPITALS CHENNAI CITY

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Abstract:
The increasing literacy rate and awareness and increasing levels of income and the evolution of the media, has brought the Indian consumer closer to demand quality health care. In the light of these developments, health care providers need to have a closer look at the perception of their patients and try to provide quality medical and health services to meet their expectations. In this study the researcher tries to identify the Service Quality Gap for the Multispecialty hospitals in Chennai City. Servqual instrument is the used to measure the patient satisfaction. Five dimensions in service quality (Servqual), tangibility, reliability, responsiveness, empathy, and assurance (Parasuraman, Zeithamal, & Berry, 1985) is considered for this research. Using Multi stage sampling method, the samples were selected. The data required was collected through the structured SERVQUAL questionnaire and then it was analyzed using SPSS with Chi-square test, Multiple Regressions, Paired t Test, Reliability test. The results showed that patient's expectations had not been met in any of the examined dimensions and their consent has not been achieved. It seemed that necessary for managers and relevant authorities to plan and pay special attention to this important issue.
Key Words: Service Quality, Servqual, Gap Analysis, Hospital Service Quality & Healthcare

1. Introduction:
India's health care sector has made impressive strides in the recent years and the expectations of the people have risen greatly. The provision of high-quality, affordable, health care services is an increasingly difficult challenge for the hospitals. Yet there is a growing need for quality hospital services to satisfy the patients with affordable cost and exemplary services. Hence, the evaluation of patient perception has become a need of the time. This helps the marketers in bringing out adequacies and inadequacies in a hospital and paves ways for innovative efforts. Quality service is appreciated worldwide and developing economy like India is no exception to it. Service quality is important to establish and sustain satisfying relationships with customers. It is important indicator of patients' satisfaction which in turn helps the hospitals to retain and create satisfaction in patients so that they can remain competitive in the market

2. Review of Literature:
Dr. Abhijit Pandit (2015) in his paper, wanted to identify the level of service quality in some randomly selected hospitals in Kolkata, West Bengal, India. Consumers' perceptions and expectations towards various parameters of service quality can differ and the degree of discrepancy between perception and expectation helps in analyzing service quality. A questionnaire was used to collect the data based on the five dimensions i.e., Tangibles, Reliability, Responsiveness, Assurance and Empathy of service quality. The researcher classified hospitals in to Private Super-Speciality Hospitals, Government Medical Colleges as well as Hospitals, Private General Hospitals. Total of 15 hospitals from which 10 customers were chosen on convenience and judgement basis from each of the selected hospitals. Data was collected from 150 respondents and was analysed. It was found that; overall the industry did not match the expectations of customers.

Prosenjit Naskar, Somnath Naskar, Sima Roy (2016) conducted to identify some important areas where improvement can be done by knowing patients expectation, perception and their gaps in Burdwan district, West Bengal, India. A cross-sectional study was conducted among patients aged >18 years. Total 350 patients from OPD by consecutive sampling and 309 patients from IPD by complete enumeration were taken from a rural hospital of Burdwan district. A modified form of SERVQUAL questionnaires was used. Service quality gaps were identified across all the five dimensions as well as all the 22 items of the survey instrument. This study measured service quality of a hospital in the context of patients' perceptions and expectations and identified some areas of improvement while catering health services

Pooja Kansra and Abhishek Kumar Jha (2016) connected the Servqual display given by Parasuraman,

for measuring the nature of administration in healing centers of Jalandhar area. An organized poll has been framed utilizing the five measurements (unwavering quality, confirmation, physical assets, responsiveness, and compassion) including 25 factors as given by Parasuraman. The information has been gathered from the healing centers in Jalandhar district in light of irregular testing approach; the model has been approved through both corroborative and exploratory factor investigation approach. The consequences of the examination did not bolster the five measurements of Parasuraman SERVQUAL in India and consequently, are decreased to four components (measurements) for measuring administration nature of healing centers in Jalandhar, India. They recommended that the strategy creators and healing facility executives should concentrate on these our variables for quality change and fulfilment of their clients

3. Research Methodology:

3.1 Population of the Study: The population considered for present study is all persons of Chennai who was admitted in the private hospitals or those who had taken treatment from private hospitals. The sample was drawn from Chennai, chosen carefully for their widely accepted characteristics.

3.2 Objectives of the Study:
- ✓ To assess the perceived service quality and patients' satisfaction of the selected multi-specialty hospitals offering medical services,
- ✓ To analyze the patients expectation on service quality of the selected multi specialty hospitals offering medical services
- ✓ To examine the gap between the expected services and perceived services (P-E), and
- ✓ To offer suggestions as to the types of the services that is needed for the enhancement of service quality and satisfaction

3.3 Sample Design: The study is conducted under Multi stage sampling method.

3.4 Sample Size: There are more than 30 Major Private Sector Hospitals in Chennai City area, inclusive of five Government Hospital offering multi treatment services. Among the top 30 Multispecialty hospitals in private sectors, there are five corporate hospitals which cover 75% of the patient population. The hospitals, which are highly recognized by the public, are:
- ✓ MIOT
- ✓ Global Hospitals
- ✓ Kasthuri Multispecialty hospitals
- ✓ Hindu mission hospital
- ✓ Bethesda Hospital

The Average Daily Patient Flow into the hospitals was (Ref: Hospital Reports)

S.No	Name of the Hospital	Avg. Daily Patient Flow
1	MIOT	2500
2	Global	1500
3	Kasthuri	1200
4	Hindu mission Hospital	1000
5	Bethesda Hospital	1000

(Source: Records of the Hospitals)

All the above hospitals are functioning on 24 x 7 basis. The data are obtained from the patients, who visit the hospital for treatment in the time period between 9-10 AM, 3-5.30 PM and 7-10 PM. 80% of the patient arrivals are in these timings. (7200*80%=5760) Among this 5% of the population is chosen as sample.

The questionnaires are issued to 365 patients and they are asked to report their perception on the service quality experienced, out of which only 300 filled in questionnaires could be collected. 60 questionnaires from all the five hospitals are taken evenly.

Through hospital visits and interviews, a team of research assistants carried out the distribution of the questionnaire and explained the purpose of the study to participants. They were present at all times when the participants were filling the questionnaires.

3.5 Data Source: This research is descriptive and exploratory in nature. It is descriptive since data has been collected through the questionnaire that was distributed. It is also exploratory because it explores the association between perception and expectation on service quality and patient satisfaction in major Multispecialty hospitals, Chennai.

a) Primary Data Collection Instrument: The data collection instrument used in this study was structured, closed ended questionnaire. The questionnaire contained questions to measure service quality in private hospitals. Modifications were made to the wording of the SERVQUAL items taken from Parasuraman, Zeithmal and Berry (1985) was added. Here Forty Five (45) statements were asked to respondents, first to know their expectation and then their perception. The statements were divided into five dimensions of service quality which are "Tangibility", "Reliability", "Responsiveness", "Assurance" and "Empathy".

b) Secondary Data: The secondary data pertaining to the study was gathered from well equipped libraries in Chennai and Coimbatore and from Internet web resources. Further, the secondary data were also collected from

various leading journals inclusive and exclusive of hospital services. A number of standard text books relevant to the topic were studied to obtain pertinent literature on patients' satisfaction

3.6 Tools: The collected data was tabulated and analysed using appropriate statistical techniques such as Reliability Test - Cronbac's alpha model.

- ✓ Descriptive Statistics
- ✓ Chi Square test
- ✓ Multiple Regression Analysis
- ✓ Factor Analysis
- ✓ Servqual Gap Analysis (Using paired t test)
- ✓ The Computations and analysis is done using SPSS 20.

4. Data Analysis and Interpretation:
4.1 Cronbach's Alpha Reliability Test:

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.944	45

Based on the reliability test results, the "perception of" questions or variables in the questionnaire distributed, the cronbach alpha value α = 0.944 which is greater than 0.7. Hence the questionnaire used in this research is expressed reliable.

4.2 Servqual Gap Analysis:

Table 2: Servqual Gap Analysis

Service Quality Dimensions	Perception Mean Score	Expectation Mean Score	P-E Gap
Tangibility	65.9233	68.13	-2.21
Reliability	28.23	33.7567	-5.53
Responsiveness	27.7667	32.08	-4.31
Assurance	39.84	43.8867	-4.05
Empathy	27.1433	29.3133	-2.17

In all the 45 items of the five dimensions of service quality patient's expectations exceed their perceptions. The gap exists in all the factors /dimensions. The gap value for the "Reliability" is (-5.53), "Responsiveness" (-4.31), "Assurance" (-4.05), "Tangibility" (-2.21) and Empathy (-2017). The most serious shortfalls are on dimensions "Reliability" is (-5.53), "Responsiveness" (-4.31), "Assurance" (-4.05).

4.3 Chi Square Test:
4.3.1 Chi Square Test for the Association of Demographic Variables and Patient Perception: The relationship between Socio demographic profile of the respondents and Patient's perception on Service Quality of Multispecialty hospitals is analysed using Chi-Square analysis. The demographic profiles of the respondents considered are Gender, Age, Monthly Family income, Education, Occupation, and Area of Residence.

Table 3: Chi Square test for the association of demographic variables and Patient Perception

Factor	Chi Square Value	Table Value	DF	P value	S/NS at 5% Level
Age	44.324	26.296	16	0	Significant
Gender	10.621	9.488	4	0.031	Significant
Education	33.221	26.296	16	0.007	Significant
Occupation	31.364	26.296	16	0.012	Significant
Income	44.927	21.026	12	0	Significant
Area of Residence	16.039	15.507	8	0.042	Significant

Interpretation:
The above table shows the relationship between Socio demographic factors of the respondents and with Patient's perception on Service Quality Dimension of Multispecialty Hospitals, Chennai. It shows that there is relationship between Age (0), Gender (0.031), Educational qualification (0.007), income (0.000), Occupation (0.012) and Area of Residence (0.042) and with the patient's perception towards Service Quality Dimensions of Multispecialty Hospitals, Chennai

4.3.2 Chi Square Test for the Association of Demographic Variables and Patient Expectation: The relationship between Socio demographic profile of the respondents and Patient's Expectation on Service Quality of Multispecialty hospitals is analysed using Chi-Square analysis. The demographic profiles of the respondents considered are Gender, Age, Monthly Family income, Education, Occupation, and Area of Residence.

Table 4: Chi Square test for the association of demographic variables and Patient Expectation

Factor	Chi Square Value	Table Value	DF	P value	Significant at 5% Level
Age	36.746	26.296	16	0.002	Significant
Gender	6.797	9.488	4	0.147	Not Significant

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Education	32.240	29.296	16	0.009	Significant
Occupation	32.036	29.296	16	0.010	Significant
Monthly Income	50.780	21.026	12	0.000	Significant
Area of Residence	20.527	15.507	8	0.009	Significant

Interpretation:

The above table shows the relationship between Socio demographic factors of the respondents and with Patient's Expectation on Service Quality Dimension of Multispecialty Hospitals, Chennai. It shows that there is relationship between Age (0.002), Educational qualification (0.009), income (0.000), Occupation (0.010) and Area of Residence (0.009) and with the patient's expectation towards Service Quality Dimensions of Multispecialty Hospitals, Chennai. And there is no relationship between Gender (0.147) and with the patient's expectation towards Service Quality Dimensions of Multispecialty Hospitals, Chennai

4.3.3 Chi Square Test for the Association of Socio Demographic Profile of the Respondents and Patient's Perception Towards Various Service Quality Dimensions of Multispecialty Hospitals: The relationship between Socio demographic profile of the respondents and Patient's perception towards various Service Quality dimensions of Multispecialty hospitals is analysed using Chi-Square analysis

Table 5: Chi square test for the association of Socio demographic profile of the respondents and Patient's perception towards various Service Quality dimensions of Multispecialty hospitals

Factors/Dimensions	Significant at 5% Level				
	Tangibility	Reliability	Responsiveness	Assurance	Empathy
Age	NS	S	S	S	S
Gender	S	S	NS	S	S
Education	S	S	S	S	S
Occupation	S	S	S	S	S
Monthly Family income	S	S	S	S	S

Interpretation:

The above table shows the relationship between Socio demographic factors of the respondents and with Patient's perception towards various Service Quality Dimension of Multispecialty Hospitals, Chennai. There is no significant association between Age and Tangibility, Gender and Responsiveness dimensions of multispecialty hospitals and there is significant association between other personal factors and perception towards various service quality dimensions of Multispecialty hospitals, Chennai.

4.3.4 Chi Square Test for the Association of Socio Demographic Profile of the Respondents and Patient's Expectation Towards Various Service Quality Dimensions of Multispecialty Hospitals: The relationship between Socio demographic profile of the respondents and Patient's expectation towards various Service Quality dimensions of Multispecialty hospitals is analysed using Chi-Square analysis.

Table 6: Chi square test for the association of Socio demographic profile of the respondents and Patient's Expectation towards various Service Quality dimensions of Multispecialty hospitals

Factors/Dimensions	Significant at 5% Level				
	Tangibility	Reliability	Responsiveness	Assurance	Empathy
Age	S	S	S	NS	S
Gender	S	NS	S	NS	NS
Education	S	S	S	S	S
Occupation	S	S	S	S	S
Monthly Family income	NS	S	S	S	NS

Interpretation:

The above table shows the relationship between Socio demographic factors of the respondents and with Patient's expectation towards various Service Quality Dimension of Multispecialty Hospitals, Chennai. There is no significant association between Age and Assurance, Gender and Reliability, Assurance, Empathy, Income and Tangibility, Empathy dimensions of multispecialty hospitals and there is significant association between other personal factors and expectation towards various service quality dimensions of Multispecialty hospitals, Chennai.

4.4 Multiple Regression Analysis: In order to measure the interdependence of independent factors and their level of satisfaction, the results were subjected to multiple regression analysis. The results of multiple regression analysis are shown in Table 7.

Table 7: Multiple Regression Analysis of the Selected Variables with Factors Related to Overall Service Quality of Hospitals

S.No	Factors	Standardized Coefficients (Beta)	t	Sig.	S/NS
	(Constant)		-8.859	.000	S

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1	PTansum	.305	17.049	.000	S
2	PRelsum	.188	6.195	.000	S
3	PRessum	.227	7.931	.000	S
4	Passsum	.304	12.435	.000	S
5	Pempsum	.183	6.823	.000	S
R-Value	R2 –Value	Degree of freedom – V1	Degree of freedom – V2	F Value	Significance
0.964	0.928	5	294	762.048	1% Level

The t and Sig (p) values give a rough indication of the impact of each predictor variable, namely, *Ptansum* (t- 17.049, p- 0.000, p< 0.01), *Prelsum* (t- 6.195 p- 0.000, p< 0.01), *Pressum* (t- 7.931, p- 0.000, p< 0.01), *Passsum* (t- 12.435, p- 0.000, p< 0.01) and *pempsuum* (t- 6.823, p- 0.000, p< 0.01). It is found that p value suggests that a predictor variable is having a large impact on the criterion variable. From the above ANOVA value, it was found that all the variables are significantly contribute to overall opinion about Service Quality of Hospitals, as the F-value 762.048, p value 0.00 which are also statistically significant

4.1 Factor Analysis:

4.1.1 Kaiser-Meyer-Olkin (KMO) Test: Kaiser-Meyer-Olkin (KMO) Test is a measure of how suited your data is for Factor Analysis. The statistic is a measure of the proportion of variance among variables that might be common variance. The lower the proportion, the more suited your data is to Factor Analysis. If the KMO Value is greater than >0.6 then that indicates the sampling is adequate.

Table 8: KMO and Bartlett's Test for Perception

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.885
Bartlett's Test of Sphericity	Approx. Chi-Square	18549.491
	DF	990
	Sig.	.000

Here the KMO Value for perception is 0.885which indicates the sampling is adequate to run the factor analysis. Factor Analysis exhibits the rotated factor loadings for the 45 statements (Variables/items) of quality of service rendered by the Multispecialty hospitals, Chennai. Now that from the Table 4.142 it is shown that out of 45 variables only 28 have high factor loadings whereas 17 variables has low factor loadings which are eliminated. Now the 28 variables are grouped in to four factors namely FC1, FC2, FC3, FC4.

Table 9: Regrouping of questionnaire items

Emerged Component / Factor	Retained Items	Labels of Component Dimensions
FC1	EMP44, EMP45, EMP41, EMP40, EMP43, RES26, RES25, REL19, RES24, REL18, RES27, RES23	Customer Relations
FC2	ASS31, ASS30, ASS32, ASS33, ASS34, REL17, REL21, REL22, REL20	Professional Competence
FC3	TAN5, TAN7, TAN8, TAN6	Infrastructure
FC4	TAN1, TAN2, TAN13	Hygiene

5. Findings:

5.1 Chi Square Test:
- ✓ There is relationship between Age, Gender, Educational qualification, income, Occupation and Area of Residence and with the patient's perception towards Service Quality Dimensions of Multispecialty Hospitals, Chennai.
- ✓ There is no significant association between Age and Tangibility, Gender and Responsiveness dimensions of multispecialty hospitals and there is significant association between other personal factors and perception towards various service quality dimensions of Multispecialty hospitals, Chennai.
- ✓ There is relationship between Age, Educational qualification, income, Occupation and Area of Residence and with the patient's expectation towards Service Quality Dimensions of Multispecialty Hospitals, Chennai. And there is no relationship between Gender and with the patient's expectation towards Service Quality Dimensions of Multispecialty Hospitals, Chennai.
- ✓ There is no significant association between Age and Assurance, Gender and Reliability, Assurance, Empathy, Income and Tangibility, Empathy dimensions of multispecialty hospitals and there is significant association between other personal factors and expectation towards various service quality dimensions of Multispecialty hospitals, Chennai.

5.2 Multiple Regression Analysis:
- ✓ In the overall ANOVA results, the step wise multiple regression models indicated that out of the explanatory variables under study, all the Variables significantly contribute to Y (Overall Opinion about Service Quality of Hospitals) which assesses the overall significance of this model (F-value 762.048, p value- 0.00, p<0.01) and also statistically significant.

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5.3 Factor Analysis:

✓ When factor analysis is used to analyze the data, 45 variables were reduced to 5 factors. These five factors were named as Customer relations, professional competence, infrastructure and hygiene. The Eigen values and total variance explained were obtained from this.

✓ To test the internally consistency of the factors, cronbach's coefficient alpha reliabilities were calculated and it is proved that the factors are consistent internally which proves that the items within the factors are homogenous and consistent internally

✓ Factors are rotated after factor extraction. Principal component analysis with orthogonal varimax rotation is used to identify the significant set of quality system factors. Out of 45 variables only 28 have high factor loadings whereas 17 variables has low factor loadings which are eliminated. Now the 28 variables are grouped in to four factors namely FC1- Customer relations, FC2- Professional competence, FC3-Infrastructure, FC4-Hygiene

5.4 Servqual Gap Analysis:

✓ The gap exists in all the factors /dimensions. The gap value for the "Reliability" is (-5.53), "Responsiveness" (-4.31), "Assurance" (-4.05), "Tangibility" (-2.21) and Empathy (-2017). The most serious shortfalls are on dimensions "Reliability" is (-5.53), "Responsiveness" (-4.31), "Assurance" (-4.05).

6. Conclusion:

Quality has become an sign for customers while undergoing any service or buying a product or service, and it is also a strategic advantage for the organizations to gain success and remain competitive in the market, by delivering superior quality of services or products, based on customer requirements. This study provides a good insight into the Multispecialty hospital sector in Chennai. Thereby, they can recognize their Strength, Weakness, Opportunity and Challenges using the different constructs used in this study. To compete in the prevailing fierce industry, every hospital in private sector should introduce an innovative practice to attract more patients through delivering the highest service quality.

The Servqual analysis helps to find out in what constructs the hospitals have to improve and in what constructs they have succeeded in meeting the expectation of the patient or its customers. The negative quality gap in service quality dimensions can be used as a guideline for planning and allocation of resources. The service quality in the areas Cost of Services, Feedback mechanism, Nurses are reliable and provide accurate information, Services provided by Hospital nurses are within promised time frame, Nurses show their interest in solving patients' basic problems, Nurses are willing to help at all times needed a lot of improvement as the negative gap score is higher in those constructs. Due to the emergence of new hospitals in every nook and corner, the resource availability is the major concern. Does all the doctors employed are highly skilled is the question arise among the population.

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