Service Quality Management Practices In Private Hospitals – A Comparative Analysis

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Abstract: The main objective of this study is to evaluate and compare service quality in private hospitals, especially in teaching hospitals those are associated with medical colleges. This comparison is made across ten dimensions of hospital service quality such as infrastructure, availability of resources, clinical procedures, quality of outcomes, administrative procedures, staff attitude, waiting time, price, information availability, and trustworthiness. Three teaching hospitals located in Bhubaneswar, Orissa are selected for this study. This study adopts a descriptive cross-sectional research design. Primary data is collected from 160 inpatients in these three hospitals through administration of a structured questionnaire, consisting 53 items on 1-7 point likert scale. Data is analyzed with the help of statistical tools like One-Way-ANOVA and Tukey's test. Findings suggest statistically significant difference in service quality between the three selected hospitals across all the ten dimensions. This indicates lack of standardization of healthcare services which provides enough scope for healthcare administrators to design and implement practices to improve the process of service delivery, thereby making hospitals effective and efficient.

Keywords: Service Quality, Private Hospital, Comparison

I. INTRODUCTION

Joint Commission on Accreditation of Healthcare Organizations (JCAHO) defines quality of health services as "the degree to which health services for individuals and populations increase the likelihood of the desired health outcomes and are consistent with the current professional knowledge". Healthcare is a process, whose quality can be defined through the quality of production and quality of output (Brent and James, 1989). Quality of production refers to the processes followed to deliver the health service. The quality of output refers to an individual's evaluation or judgment based on perception of some set of attributes of the outcome from the health service. It is a relative term and assessed by comparing to other similar items or events. Quality is thus a perception that is based on an individual's value system. Due to increased consumer awareness, education level, income, and penetration of health insurance in India and other developing countries, consumers are attaching higher importance to the service quality in hospitals and other health services. Service quality is defined as the consumer's overall impression of the relative inferiority or superiority of the organization and its services (Bitner & Hubbert, 1994). This study aims to evaluate and compare service quality in private teaching hospitals as perceived by patients receiving medical services in these hospitals.

II. LITERATURE REVIEW

This study has identified ten dimensions through which patients evaluate quality of service in a hospital setting. These dimensions are infrastructure, availability or resources, clinical procedures, quality of outcomes, administrative procedures, waiting time, staff attitude, price, information availability, and trustworthiness.

'Infrastructure' refers to the cleanliness, physical appearance, and physical layout of a hospital. Infrastructure is considered as an important dimension of hospital service quality by many researchers such as Roshnee and Fowder

(2008); Rashid and Jusoff (2009); Mejabi and Olujide (2008); Duggirala et al. (2008); Padma et al. (2009); Chahal and Kumari (2010); Padma et al. (2010); Narang (2010); and Mosadeghrad (2013). 'Availability of Resources' refers to the availability of doctors, nurses, paramedical staff, drugs, ambulance, diagnostic and emergency facilities. Availability of resources has been considered as an important dimension of hospital service quality by many researchers such as Roshnee and Fowder (2008); Mejabi and Olujide (2008); Padma et al. (2010); and Chahal and Kumari (2010).

'Clinical Procedures' refers to the extent to which doctors examine patient's condition, conduct of appropriate diagnostic and treatment procedures, and the nature of medical advice given by doctors. Clinical procedure has been considered as an important dimension of hospital service quality by researchers such as Sower et al. (2001); Roshnee and Fowder (2008); Mejabi and Olujide (2008); Padma et al. (2010); and Eleuch (2011). 'Quality of Outcomes' refers to the effectiveness of the treatment process in curing the illness of patients. It is considered as an important dimension of hospital service quality by researchers like Sower et al. (2001); Dagger et al. (2007); Mejabi and Olujide (2008); Chahal and Kumari (2010); and Padma et al. (2010). 'Administrative Procedures' refers to ease of access to hospital, process of admission, discharge, and record maintenance. It is considered as one of the important dimensions of hospital service quality by researchers like Sower et al. (2001); Dagger et al. (2007); Duggirala et al. (2008); and Padma et al. (2010).

'Staff Attitude' refers to the responsiveness and helping attitude of hospital staff towards patients and their attendants. It is considered as an important dimension of hospital service quality by researchers like Dagger et al. (2007); Mejabi and Olujide (2008); Duggirala et al. (2008); Roshnee and Fowder (2008); Rashid and Jussof (2009); Chahal and Kumari (2010); Narang (2010); and Padma et al. (2010). 'Waiting Time' refers to time required to meet doctors, receive treatment, and receive diagnostic reports. It is considered as an important dimension of hospital service quality by researchers such as Rose et al. (2004); Dagger et al. (2007); Mejabi and Olujide (2008); and Chahal and Kumari (2010).

'Information Availability' refers to providing information related to the medical condition, treatment process and possible outcomes. It is considered as an important dimension of hospital service quality by researchers like Sower et al. (2001); Roshnee and Fowder (2008); and Rashid and Jussof (2009). 'Trustworthiness' refers to the reliability and image of hospital along with expertise of medical staff to treat patients. It is considered as an important dimension of hospital service quality by researchers like Dagger et al. (2007); Roshnee and Fowder (2008); Duggirala et al. (2008); Rashid and Jussof (2009); and Padma et al. (2010). In all the above studies evaluation of hospital service quality is done through patients' perception about the delivery of health services.

III. RESEARCH METHODOLOGY

This study adopts a descriptive cross-sectional research design. Three private teaching hospitals or hospitals associated with medical colleges situated in the region of Bhubaneswar,

Orissa are considered for this comparative study. These three hospitals are Hi-Tech Medical College & Hospital, Institute of Medical Sciences & SUM Hospital, and Kalinga Institute of Medical Sciences (KIMS). Comparison of service quality between these three hospitals is made across ten dimensions as discussed earlier. Responses regarding service quality is collected from inpatients with the help of a structured questionnaire consists of 53 items framed on a 1-7 point likert scale pattern. The final sample consists of a total 160 respondents out of which 60 each belong to Hi-tech hospital and SUM hospital, whereas 40 respondents belong to KIMS. The data collected is analyzed with the help of statistical tools like One-Way-ANOVA and Tukey's Test.

IV. DATA ANALYSIS

A. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'INFRASTRUCTURE'

$H_0 1$ (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Infrastructure' between the three private hospitals

$H_1 1$ (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Infrastructure' between the three private hospitals

ANOVA

Infrastructure

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	7065.244	2	3532.622	182.276	.000
Within Groups	3042.750	157	19.381		
Total	10107.994	159			

Table 1: SPSS output of ANOVA for comparison of Infrastructure

The above shown ANOVA table (Table-1) shows F-value 182.276 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Infrastructure' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Infrastructure
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-13.050*	.804	.000	-14.95	-11.15
	KIMS	-14.600*	.899	.000	-16.73	-12.47

Sum Hospital	Hi-tech	13.050*	.804	.000	11.15	14.95
	KIMS	-1.550	.899	.199	-3.68	.58
KIMS	Hi-tech	14.600*	.899	.000	12.47	16.73
	Sum Hospital	1.550	.899	.199	-.58	3.68

*. The mean difference is significant at the 0.05 level.

Table 2: SPSS output of Tukey's test for comparison of Infrastructure

The above 'multiple comparisons' table (Table-2) shows six pairwise comparisons made between the three private hospitals. Out of these six pairwise comparisons, the mean differences are statistically significant for the pairs Hi-tech & SUM Hospital (significance value less than 0.001), and Hi-tech & KIMS (significance value less than 0.001) whereas the mean difference is not statistically significant for the pair SUM Hospital & KIMS (significance value 0.199 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in quality of infrastructure between Hi-tech & SUM Hospital as well as Hi-tech & KIMS. However, patients perceive the quality of infrastructure to be similar between SUM Hospital & KIMS. Thus, it can be concluded that SUM Hospital (mean score 34.00) has better infrastructure than that of Hi-tech Hospital (mean score 20.95) and KIMS (mean score 35.55) has better infrastructure than that of Hi-tech hospital (mean score 20.95).

B. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'AVAILABILITY OF RESOURCES'

H_02 (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Availability of resources' between the three private hospitals

H_12 (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Availability of resources' between the three private hospitals

ANOVA

Availability of Resources

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2740.333	2	1370.167	75.565	.000
Within Groups	2846.767	157	18.132		
Total	5587.100	159			

Table 3: SPSS output of ANOVA for comparison of Availability of Resources

The above shown ANOVA table (Table-3) shows F-value 75.565 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Availability of resources' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Availability of Resources
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-9.367*	.777	.000	-11.21	-7.53
	KIMS	-2.783*	.869	.005	-4.84	-.73
Sum Hospital	Hi-tech	9.367*	.777	.000	7.53	11.21
	KIMS	6.583*	.869	.000	4.53	8.64
KIMS	Hi-tech	2.783*	.869	.005	.73	4.84
	Sum Hospital	-6.583*	.869	.000	-8.64	-4.53

*. The mean difference is significant at the 0.05 level.

Table 4: SPSS output of Tukey's test for comparison of Availability of Resources

The above 'multiple comparisons' table (Table-4) shows six pairwise comparisons made between the three private hospitals. The mean differences are statistically significant for all the pairs: Hi-tech & SUM Hospital (significance value less than 0.001), Hi-tech & KIMS (significance value 0.005 that is less than 0.05) and SUM Hospital & KIMS (significance value less than 0.001). Thus, it can be inferred that patients perceive significant difference in availability of resources between all the three private hospitals. Thus, it can be concluded that SUM Hospital (mean score 30.73) has better availability of resources than that of KIMS (mean score 24.15) which in turn, has better availability of resources than that of Hi-tech hospital (mean score 21.37).

C. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'CLINICAL PROCEDURES'

H_03 (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Clinical Procedures' between the three private hospitals

H_13 (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Clinical Procedures' between the three private hospitals

ANOVA

Clinical Procedures

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	246.527	2	123.264	13.583	.000
Within Groups	1424.717	157	9.075		
Total	1671.244	159			

Table 5: SPSS output of ANOVA for comparison of Clinical Procedures

The above shown ANOVA table (Table-5) shows F-value 13.583 and the significance of F-value is less than 0.001. This

indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Clinical Procedures' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Clinical Procedures
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-2.350*	.550	.000	-3.65	-1.05
	KIMS	.467	.615	.729	-.99	1.92
Sum Hospital	Hi-tech	2.350*	.550	.000	1.05	3.65
	KIMS	2.817*	.615	.000	1.36	4.27
KIMS	Hi-tech	-.467	.615	.729	-1.92	.99
	Sum Hospital	-2.817*	.615	.000	-4.27	-1.36

*. The mean difference is significant at the 0.05 level.
Table 6: SPSS output of Tukey's test for comparison of Clinical Procedures

The above 'multiple comparisons' table (Table-6) shows six pairwise comparisons made between the three private hospitals. Out of these six pairwise comparisons, the mean differences are statistically significant for the pairs Hi-tech & SUM Hospital (significance value less than 0.001), and SUM Hospital & KIMS (significance value less than 0.001) whereas the mean difference is not statistically significant for the pair Hi-tech Hospital & KIMS (significance value 0.729 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in quality of clinical procedures between Hi-tech & SUM Hospital as well as SUM Hospital & KIMS. However, patients perceive the quality of clinical procedure to be similar between Hi-tech Hospital & KIMS. Thus, it can be concluded that SUM Hospital (mean score 22.22) has better clinical procedures than that of Hi-tech Hospital (mean score 19.87) and KIMS (mean score 19.40).

D. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'QUALITY OF OUTCOMES'

H_04 (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Quality of outcomes' between the three private hospitals

H_14 (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Quality of outcomes' between the three private hospitals

ANOVA

Quality of Outcomes

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	238.610	2	119.305	26.176	.000
Within Groups	715.583	157	4.558		
Total	954.194	159			

Table 7: SPSS output of ANOVA for comparison of Quality of Outcomes

The above shown ANOVA table (Table-7) shows F-value 26.176 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Quality of Outcomes' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Quality of Outcomes
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-2.317*	.390	.000	-3.24	-1.39
	KIMS	.450	.436	.557	-.58	1.48
Sum Hospital	Hi-tech	2.317*	.390	.000	1.39	3.24
	KIMS	2.767*	.436	.000	1.74	3.80
KIMS	Hi-tech	-.450	.436	.557	-1.48	.58
	Sum Hospital	-2.767*	.436	.000	-3.80	-1.74

*. The mean difference is significant at the 0.05 level.
Table 8: SPSS output of Tukey's test for comparison of Quality of Outcomes

The above 'multiple comparisons' table (Table-8) shows six pairwise comparisons made between the three private hospitals. Out of these six pairwise comparisons, the mean differences are statistically significant for the pairs Hi-tech & SUM Hospital (significance value less than 0.001), and SUM Hospital & KIMS (significance value less than 0.001) whereas the mean difference is not statistically significant for the pair Hi-tech Hospital & KIMS (significance value 0.557 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in quality of outcomes between Hi-tech & SUM Hospital as well as SUM Hospital & KIMS. However, patients perceive the quality of outcome to be similar between Hi-tech Hospital & KIMS. Thus, it can be concluded that SUM Hospital (mean score 17.17) has better quality of outcomes than that of Hi-tech Hospital (mean score 14.85) and KIMS (mean score 14.40).

E. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'ADMINISTRATIVE PROCEDURES'

H_05 (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Administrative Procedures' between the three private hospitals

H_15 (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Administrative Procedures' between the three private hospitals

ANOVA

Administrative Procedures

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1085.852	2	542.926	29.158	.000
Within Groups	2923.342	157	18.620		
Total	4009.194	159			

Table 9: SPSS output of ANOVA for comparison of Administrative Procedures

The above shown ANOVA table (Table-9) shows F-value 29.158 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Administrative Procedures' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Administrative Procedures
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-1.900*	.788	.045	-3.76	-.04
	KIMS	4.758*	.881	.000	2.67	6.84
Sum Hospital	Hi-tech	1.900*	.788	.045	.04	3.76
	KIMS	6.658*	.881	.000	4.57	8.74
KIMS	Hi-tech	-4.758*	.881	.000	-6.84	-2.67
	Sum Hospital	-6.658*	.881	.000	-8.74	-4.57

*. The mean difference is significant at the 0.05 level.

Table-10: SPSS output of Tukey's test for comparison of Administrative Procedures

The above 'multiple comparisons' table (Table-10) shows six pairwise comparisons made between the three private hospitals. The mean differences are statistically significant for all the pairs: Hi-tech & SUM Hospital (significance value less than 0.001), Hi-tech & KIMS (significance value less than 0.001) and SUM Hospital & KIMS (significance value less than 0.001). Thus, it can be inferred that patients perceive significant difference in administrative procedures between all the three private hospitals. Thus, it can be concluded that SUM Hospital (mean score 43.48) has better administrative procedures than that of Hi-tech Hospital (mean score 41.58) which in turn, has better administrative procedures than that of KIMS (mean score 36.83).

F. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'WAITING TIME'

H_06 (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Waiting Time' between the three private hospitals

H_16 (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Waiting Time' between the three private hospitals

ANOVA

Waiting Time

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	135.327	2	67.664	9.022	.000
Within Groups	1177.517	157	7.500		
Total	1312.844	159			

Table 11: SPSS output of ANOVA for comparison of Waiting Time

The above shown ANOVA table (Table-11) shows F-value 9.022 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Waiting Time' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Waiting Time
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-1.950*	.500	.000	-3.13	-.77
	KIMS	-1.817*	.559	.004	-3.14	-.49
Sum Hospital	Hi-tech	1.950*	.500	.000	.77	3.13
	KIMS	.133	.559	.969	-1.19	1.46
KIMS	Hi-tech	1.817*	.559	.004	.49	3.14
	Sum Hospital	-.133	.559	.969	-1.46	1.19

*. The mean difference is significant at the 0.05 level.

Table 12: SPSS output of Tukey's test for comparison of Waiting Time

The above 'multiple comparisons' table (Table-12) shows six pairwise comparisons made between the three private

hospitals. Out of these six pairwise comparisons, the mean differences are statistically significant for the pairs Hi-tech & SUM Hospital (significance value less than 0.001), and Hi-tech Hospital & KIMS (significance value 0.004 that is less than 0.05) whereas the mean difference is not statistically significant for the pair SUM Hospital & KIMS (significance value 0.969 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in waiting time between Hi-tech & SUM Hospital as well as Hi-tech Hospital & KIMS. However, patients perceive the waiting time to be similar between SUM Hospital & KIMS. Thus, it can be concluded that SUM Hospital (mean score 22.73) has better waiting time management than that of Hi-tech Hospital (mean score 20.78) and KIMS (mean score 22.60) has better waiting time management than that of Hi-tech Hospital (mean score 20.78).

G. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'STAFF ATTITUDE'

H_07 (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Staff Attitude' between the three private hospitals

H_17 (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Staff Attitude' between the three private hospitals

ANOVA

Staff Attitude

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1260.942	2	630.471	30.115	.000
Within Groups	3286.833	157	20.935		
Total	4547.775	159			

Table 13: SPSS output of ANOVA for comparison of Staff Attitude

The above shown ANOVA table (Table-13) shows F-value 30.115 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Staff Attitude' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Staff Attitude
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-1.133	.835	.366	-3.11	.84
	KIMS	-6.950*	.934	.000	-9.16	-4.74

Sum Hospital	Hi-tech	1.133	.835	.366	-.84	3.11
	KIMS	-5.817*	.934	.000	-8.03	-3.61
KIMS	Hi-tech	6.950*	.934	.000	4.74	9.16
	Sum Hospital	5.817*	.934	.000	3.61	8.03

*. The mean difference is significant at the 0.05 level.
Table 14: SPSS output of Tukey's test for comparison of Staff Attitude

The above 'multiple comparisons' table (Table-14) shows six pairwise comparisons made between the three private hospitals. Out of these six pairwise comparisons, the mean differences are statistically significant for the pairs Hi-tech & KIMS (significance value less than 0.001), and KIMS & SUM Hospital (significance value less than 0.001) whereas the mean difference is not statistically significant for the pair Hi-tech & SUM Hospital (significance value 0.835 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in staff attitude between Hi-tech & KIMS as well as KIMS & SUM Hospital. However, patients perceive attitude of staff to be similar between Hi-tech & SUM Hospital. Thus, it can be concluded that KIMS (mean score 26.75) has better attitude of staff than that of Hi-tech Hospital (mean score 19.80) and SUM Hospital (mean score 20.93).

H. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'PRICE'

H_08 (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Price' between the three private hospitals

H_18 (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Price' between the three private hospitals

ANOVA

Price

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	62.508	2	31.254	4.133	.018
Within Groups	1187.267	157	7.562		
Total	1249.775	159			

Table 15: SPSS output of ANOVA for comparison of Price

The above shown ANOVA table (Table-15) shows F-value 4.133 and the significance of F-value 0.018 which is less than 0.05. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Price' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Price
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-1.167	.502	.055	-2.35	.02
	KIMS	.267	.561	.883	-1.06	1.59
Sum Hospital	Hi-tech	1.167	.502	.055	-.02	2.35
	KIMS	1.433*	.561	.031	.11	2.76
KIMS	Hi-tech	-.267	.561	.883	-1.59	1.06
	Sum Hospital	-1.433*	.561	.031	-2.76	-.11

*. The mean difference is significant at the 0.05 level.

Table 16: SPSS output of Tukey's test for comparison of Price

The above 'multiple comparisons' table (Table-16) shows six pairwise comparisons made between the three private hospitals. Out of these six pairwise comparisons, the mean difference is statistically significant only for the pair SUM Hospital & KIMS (significance value 0.031 that is less than 0.05) whereas the mean differences are not statistically significant for the pairs Hi-tech & SUM Hospital (significance value 0.055 that is greater than 0.05) and Hi-tech Hospital & KIMS (Significance value 0.883 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in price charged between SUM Hospital & KIMS. However, patients perceive the price to be similar between Hi-tech & SUM Hospital as well as Hi-tech & KIMS. Thus, it can be concluded that SUM Hospital (mean score 13.83) has better price structure than that of KIMS (mean score 12.40).

I. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'INFORMATION AVAILABILITY'

$H_0 9$ (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Information Availability' between the three private hospitals

$H_1 9$ (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Information Availability' between the three private hospitals

ANOVA

Information Availability

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	953.742	2	476.871	71.483	.000
Within Groups	1047.358	157	6.671		
Total	2001.100	159			

Table 17: SPSS output of ANOVA for comparison of Information Availability

The above shown ANOVA table (Table-17) shows F-value 71.483 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance

of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Information Availability' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Information Availability
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-1.083	.472	.059	-2.20	.03
	KIMS	4.992*	.527	.000	3.74	6.24
Sum Hospital	Hi-tech	1.083	.472	.059	-.03	2.20
	KIMS	6.075*	.527	.000	4.83	7.32
KIMS	Hi-tech	-4.992*	.527	.000	-6.24	-3.74
	Sum Hospital	-6.075*	.527	.000	-7.32	-4.83

*. The mean difference is significant at the 0.05 level.

Table 18: SPSS output of Tukey's test for comparison of Information Availability

The above 'multiple comparisons' table (Table-18) shows six pairwise comparisons made between the three private hospitals. Out of these six pairwise comparisons, the mean differences are statistically significant for the pairs Hi-tech Hospital & KIMS (significance value less than 0.001), and SUM Hospital & KIMS (significance value less than 0.001) whereas the mean difference is not statistically significant for the pair Hi-tech & SUM Hospital (significance value 0.059 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in availability of information between Hi-tech Hospital & KIMS as well as SUM Hospital & KIMS. However, patients perceive the level of information availability to be similar between Hi-tech & SUM Hospital. Thus, it can be concluded that SUM Hospital (mean score 21.00) provides better availability of information than that of KIMS (mean score 14.93) and Hi-tech Hospital (mean score 19.92) provides better availability of information than that of KIMS (mean score 14.93).

J. COMPARISON OF SERVICE QUALITY ACROSS THE DIMENSION 'TRUSTWORTHINESS'

$H_0 10$ (Null Hypothesis): There is no difference in perceived service quality for the dimension 'Trustworthiness' between the three private hospitals

$H_1 10$ (Alternate Hypothesis): There is significant difference in perceived service quality for the dimension 'Trustworthiness' between the three private hospitals

ANOVA

Trustworthiness

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	263.327	2	131.664	17.728	.000
Within Groups	1166.017	157	7.427		
Total	1429.344	159			

Table 19: SPSS output of ANOVA for comparison of Trustworthiness

The above shown ANOVA table (Table-19) shows F-value 17.728 and the significance of F-value is less than 0.001. This indicates rejection of the null hypothesis and acceptance of the alternate hypothesis. Thus, it can be concluded that the difference in the service quality dimension 'Trustworthiness' between the three selected private hospitals is statistically significant at 95% confidence level. Since the main effect is significant, Tukey's test is performed to check pairwise differences in the means. The result of Tukey's test is shown below.

Multiple Comparisons

Trustworthiness
Tukey HSD

(I) Name of the hospital	(J) Name of the hospital	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hi-tech	Sum Hospital	-2.550[*]	.498	.000	-3.73	-1.37
	KIMS	.233	.556	.908	-1.08	1.55
Sum Hospital	Hi-tech	2.550[*]	.498	.000	1.37	3.73
	KIMS	2.783[*]	.556	.000	1.47	4.10
KIMS	Hi-tech	-.233	.556	.908	-1.55	1.08
	Sum Hospital	-2.783[*]	.556	.000	-4.10	-1.47

*. The mean difference is significant at the 0.05 level.

Table 20: SPSS output of Tukey's test for comparison of Trustworthiness

The above 'multiple comparisons' table (Table-20) shows six pairwise comparisons made between the three private hospitals. Out of these six pairwise comparisons, the mean differences are statistically significant for the pairs Hi-tech & SUM Hospital (significance value less than 0.001), and SUM Hospital & KIMS (significance value less than 0.001) whereas the mean difference is not statistically significant for the pair Hi-tech & KIMS (significance value 0.908 that is greater than 0.05). Thus, it can be inferred that patients perceive significant difference in trustworthiness between Hi-tech & SUM Hospital as well as SUM Hospital & KIMS. However, patients perceive the level of trustworthiness to be similar between Hi-tech Hospital & KIMS. Thus, it can be concluded that SUM Hospital (mean score 21.43) has better trustworthiness than that of Hi-tech Hospital (mean score 18.88) and KIMS (mean score 18.65).

V. CONCLUSION

Results of data analysis show statistically significant difference in patients' perception about service quality between the three private hospitals across all the ten dimensions considered for this study. Findings suggest that patients perceive the quality of service at SUM hospital is better compared to Hi-Tech and KIMS hospitals across all the dimensions except price and staff attitude. Findings also suggest that patients perceive similar level of quality of service delivery between KIMS and Hi-Tech hospitals across dimensions like clinical procedures, quality of outcomes, and trustworthiness. Similar level of patients' perception about service quality is observed between SUM and KIMS hospitals across dimensions like infrastructure and waiting time. Thus, it can be inferred that SUM hospital has implemented better service quality management practices compared to KIMS hospital which is followed by Hi-Tech hospital. This difference in service quality indicates lack of standardization in implementation of service standards which provides great opportunity as well as challenge to healthcare administrators to design and implement strategies to improve hospital service quality and harness a patient centric service delivery model.

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