Original Article

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Effect of Hospital Accreditation on Quality of Care as Perceived by Patients

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Abstract

The study is aimed at understanding whether the accreditation of hospital in India (NABH) has any effect on its quality, as perceived by the patients. Primary data was collected from patients who took treatment in accredited and non-accredited hospitals, on their rating of Infrastructure, process and outcome of care at their hospital. The data was statistically analysed to determine if there is any significant difference in the rating given by accredited hospital's patients from non-accredited hospital's patients.

The study found that except infrastructure component, the mean rating and percentage of high rating were significantly higher for process and outcome component. The overall rating was also significantly higher by accredited hospitals patients.

Keywords: Accreditation; Hospital; Healthcare Quality; Patient Care.

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Introduction

Accreditation of hospitals is considered as one of the most successful mechanism to achieve improvement in quality and safety of healthcare [1]. Accreditation is the recognition of a certain level of quality by an organization as assessed by a third party. It is a process of certifying the credibility of an organization. In healthcare, accreditation recognize and certifies the capability of a healthcare organization in delivering an acceptable standard of healthcare services, which is based upon good and safe practices.

Accreditation is gaining prominence amongst healthcare organizations in India [2]. Accreditation by National Accreditation Board for Hospitals and Healthcare Providers (NABH) is the most sought after accreditation by Indian hospitals. After the advent of NABH accreditation in India in 2006, the number of hospital achieving NABH accreditation has been consistently increasing [2]. The process of getting accreditation by NABH involves application, pre-assessment, final assessment and grant of accreditation. In between these stages the HCO is required to prepare itself as per the requirements of accreditation standards [3,4].

Since its inception the NABH board has promoted accreditation of hospital as an effective mean to improve quality and patient safety [5,6]. Several benefits of accreditation for different stakeholders of the hospital have been mentioned [5,6]. Several other organizations specifically who are in business of providing consultancy support to hospitals also promotes accreditation on similar lines [7].

However, the recognition of accreditation as a means to healthcare quality have not been sufficiently verified scientifically [7]. Although there have been various researches and systematic literature reviews conducted in other parts of the world, in India no such study has been done till date. The concept of accreditation in hospitals started almost 60-70 years back and in last two decades have gained high momentum, the quantum of researches done on accreditation is relatively limited [5]. Due to the growing need of

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accreditation in healthcare and amount of efforts involved in it, questions are being raised on value that accreditation brings in to healthcare quality. Several studies conducted on few prominent accreditation systems to see its effect on healthcare and since these accreditation system differs in their structure, system and implementation mechanism, the results of these studies are expected to be varying.

Effect of accreditation has been researched by several researchers using different methods. These studies have been done on different accreditation system in world and hence there is a limitation with generalizing their finding on other accreditation systems. While most studies found evidence of accreditation having a positive impact on healthcare outcomes, the level and consistency of effect have not been sufficiently verified. Also these studies have majorly shown that different component of a healthcare organization had different level of impact on its quality.

Existing studies on healthcare accreditation shows differential result with different accreditation system. Also, as different accreditation system has their own set of standards, assessment and accreditation method, generalizing result of study of on one accreditation system on other may be limited. Several studies have also found contradicting findings even with same accreditation system. This explains that while accreditation may have sufficient association on some parameters it may not be associated with other parameters.

While most studies observed and compared accreditation's impact on clinical care components [8-14], very few shows an overall impact on hospital as an organization [15,16,17]. Clinical care although is a vital component of healthcare the non-clinical aspects also plays an important role in overall healthcare quality. Things like infrastructure, human resource capability, patient care processes, client satisfaction etc. constitutes and important part of overall quality and whether or not accreditation has any effect on them, is not reflecting from literatures reviewed.

With regards to NABH accreditation no significant literature could be found on studies relating accreditation with quality, patient safety or healthcare outcome. In one intra-institutional experience study that was conducted to evaluate the change of attitude toward acceptance of NABH guidelines by medical practitioner, it was reported that medical staff had a positive attitude and improved knowledge about accreditation after 6 months working in a hospital on the way to NABH [22]. However, no link with healthcare performance, quality, safety or outcome were made. Hence there is a need to study how NABH is associated with healthcare delivery and what is its effects/impacts on healthcare outcome, quality and safety.

Accreditation requires significant amount of financial resources and efforts on part of the hospitals. Financial implications for accreditation are both direct and indirect [4]. Direct costs are those in form of accreditation fee and cost involved in process of accreditation such as external assessments. These costs are recurring in nature. Indirect costs are those that are required to be done in hospital in-order to comply with accreditation requirements. These costs are variable and to large extent depend upon existing status of the hospital and how much work is involved in meeting accreditation requirements. Although there is no authentic data explaining expenditure on accreditation, it can range from moderate to high.

Since these expenditure and efforts are being done primarily to improve patient care quality [6], it is imperative to have an evidence to ascertain the same. One of the most important stakeholder for hospitals are its patient and hence it is imperative to know, if there is a difference in the way patients' perceive accredited and non-accredited hospitals.

Methodology

The methodology aimed at understanding whether or not hospital accreditation affects the quality of healthcare, as perceived by the Patients. For this, response of patients, who took treatment in accredited and non-accredited hospitals were collected through a standard instrument created for the purpose of this study.

Framework of the study: Since the concept of quality in healthcare has been explained in numerous ways and there are different models available for its description, identifying one for the purpose for this research is essential to avoid confusion and to bring in uniformity in measuring and stating quality. There are significantly large number of different models in healthcare for quality which indicates that modelling the healthcare quality correctly is near impossible or it is a fiction not a reality [25]. After reviewing the popular models [19-23], Donabedian's conceptual model of quality of care has been chosen for this study.

The model proposed by AvedisDonabedian is arguably the most widely accepted method to design the main dimensions of healthcare quality [24,25,26]. In his work published in 1988, Donabedian defined the quality and described its parameters in healthcare organization. According to the model, understanding about quality of care can be drawn from three categories: "structure," "process," and "outcomes.". Structure describes the context in which care is delivered, including hospital buildings, staff, financing, and equipment. Process denotes the transactions between patients and providers throughout the delivery of healthcare. Finally, outcomes refer to the effects of healthcare on the health status of patients and populations.

The study utilizes Donabedian's quality of care model to describe and assess quality in healthcare organization. The instruments used for data collection are constructed based on components described under this model. The concept of quality in healthcare given in this model has been adopted for analysis, discussion and findings in this study.

Accordingly, the response of quality of healthcare were collected and analysed under following components-

1. Infrastructure of hospital – This includes facility, equipment and human resources of the hospital, as perceived by patients
2. Process – This includes policies and processes used at hospital for clinical and non-clinical work, as perceived by patients
3. Outcome – The outcome of treatment, as perceived by the patient
4. Overall – This is the overall response on quality of the hospital by the patient

Study design: Cross sectional exploratory study design is used for the purpose of this research work. The data from sample belonging to accredited hospitals was compared with the data from sample belonging to non-accredited hospitals. The samples were matched in all other parameters except their belonging to accredited or non-accredited hospital. The data from 2 samples were analysed to observe of significant differences.

Study group (respondent patients): The respondents were sourced from 2 hospitals who are accredited by NABH and 2 hospitals that were not accredited at the time of collection of data. The comparison of hospitals from where respondents were sampled is given in table 1 below.

Table 1: Hospitals from where respondents were sampled

	Hospital A	**Hospital B**	**Hospital C**	**Hospital D**
Accreditation status	Accredited by NABH	Accredited by NABH	Not accredited	Not Accredited
Date of achieving accreditation	23 June, 2013	27 September, 2016	NA	NA
Ownership	Private – Corporate	Private – Corporate	Private – Corporate	Private – Corporate
Bed strength	150	175	150	120
Facilities	OPD, IPD, ICU, Surgical services and Emergency services	OPD, IPD, ICU, Surgical services and Emergency services	OPD, IPD, ICU, Surgical services and Emergency services	OPD, IPD, ICU, Surgical services and Emergency services
Average annual out-patient attendance	40,000 – 45,000	65,000 – 75,000	55,000 – 60,000	45,000 – 50,000
Average annual in-patient admissions	3,800 – 4,100	6,800 – 7,000	5,000 – 5,200	4,00 – 4,300
Average Bed occupancy rate	45-50%	55-60%	50-55%	50-55%

The patients who took treatment in any one of the above hospitals were randomly sampled using the criteria given in Table 2 below.

Table 2: Inclusion and Exclusion Criteria

Respondent group	**Inclusion criteria**	**Exclusion criteria**
Patient from accredited hospital	• Patients who took treatment in an NABH accredited hospital (selected hospitals for the purpose of this study) • Patient has spent at-least 2 days in the hospital • Patient has been discharged from the hospital	• Age less than 18 • Have not taken any treatment in the hospital • Discharged from the hospital more than 1 month before the day on which response is being sought • Not in a sound mind to give response

Respondent group	Inclusion criteria	Exclusion criteria
Patient from non-accredited hospital	• Patients who took treatment in a hospital not accredited by any national or international body (selected hospitals for the purpose of this study) • Patient has spent at-least 2 days in the hospital • Patient has been discharged from the hospital	• Age less than 18 • Have not taken any treatment in the hospital • Discharged from the hospital more than 1 month before the day on which response is being sought • Not in a sound mind to give response

Data collection: Data was collected using the structured instrument created on the basis of Donabedian's concept of quality in healthcare. The validity analysis of the instrument and pilot testing was carried out prior to collection of actual data. The instrument was prepared in two languages, English and Hindi.

Hypothesis: The hypothesis which were used for statistical analysis are

H0-1: There is no significant difference in the rating given to **infrastructure** component of the hospital, by Patients' from accredited hospital (Pat-Ac) and Patients from non-accredited hospitals (Pat-NAc)

H0-2: There is no significant difference in the distribution of 'high' and 'not high' rating given to **infrastructure** component, by Pat-Ac and Pat-NAc

H0-3: There is no significant difference in the rating given to **process** component of the hospital, by Pat-Ac and Pat-NAc

H0-4: There is no significant difference in the distribution of 'high' and 'not high' rating given to **process** component, by Pat-Ac and Pat-NAc

H05: There is no significant difference in the rating given to **outcome** component of the hospital, by Pat-Ac and Pat-NAc

H06: There is no significant difference in the distribution of 'high' and 'not high' rating given to **outcome** component, by Pat-Ac and Pat-NAc

H07: There is no significant difference in the rating given to **overall** hospital, by Pat-Ac and Pat-NAc

H08: There is no significant difference in the distribution of 'high' and 'not high' rating given to **overall** hospital**;**, by Pat-Ac and Pat-NAc

Findings

A total of 295 patients were sampled for the study, 144 from accredited hospitals and 151 from non-accredited hospitals. The profile mix of patients under both the group is described in table 3 below.

Table 3: Patients' sample mix

Description	From accredited hospitals	From non-accredited hospitals	Total
Sample size (n)	144	151	295
Gender			
Males	93 (64.58%)	99 (65.56%)	144 (48.81%)
Females	51 (35.42%)	52 (34.44%)	151 (51.19%)
Age group			
18-30	17 (11.81%)	26 (17.22%)	43 (14.58%)
31 – 45	45 (31.25%)	49 (32.45%)	94 (31.86%)
46 - 60	49 (34.03%)	49 (32.45%)	98 (33.22%)
> 60	33 (22.92%)	27 (17.88%)	60 (20.34%)
Educational level			
Class 10 or below	14 (9.72%)	27 (17.88%)	41 (13.90%)
Class 12 / Diploma holders	37 (25.69%)	54 (35.76%)	91 (30.85%)
Graduation and above	93 (64.58%)	70 (46.36%)	163 (55.25%)
Income level			
Low income group	19 (13.19%)	30 (19.87%)	49 (16.61%)
Middle income group	112 (77.78%)	114 (75.5%)	226 (76.61%)
High income group	13 (9.03%)	7 (4.64%)	20 (6.78%)
Regularity with hospital			
First time	112 (77.78%)	94 (62.25%)	206 (69.83%)
Re-visiting	32 (22.22%)	57 (37.75%)	89 (30.17%)
Length of stay			
2 – 5 days	62 (43.06%)	61 (40.4%)	123 (41.69%)
6 – 10 days	58 (40.28%)	57 (37.75%)	115 (38.98%)
> 10 days	24 (16.67%)	33 (21.85%)	57 (19.32%)
Payment of bills			
Self/Family	97 (67.36%)	109 (72.19%)	206 (69.83%)
Insurance	36 (25%)	19 (12.58%)	55 (18.64%)
Company/ Employer	8 (5.56%)	17 (11.26%)	25 (8.47%)
Other	3 (2.08%)	6 (3.97%)	9 (3.05%)

The summary of data from patients on Infrastructure component is given in Table 4 below

Table 4: Summary of data from patients on Infrastructure component

	Pat-Ac	Pat-NAc
Sample size (n)	144	151
Mean rating	4.24	4.25
Standard Deviation	1.23	0.9
No. of rating as		
5	80 (55.56%)	78 (51.66%)
4	39 (27.08%)	45 (29.8%)
3	12 (8.33%)	20 (13.25%)
2	5 (3.47%)	5 (3.31%)
1	8 (5.56%)	3 (1.99%)

Testing of null Hypothesis H0-1a: To test the null hypothesis (There is no significant difference in the rating given to **infrastructure** component of the hospital, by Pat-Ac and Pat-NAc), t-test (two sample assuming unequal variances) was performed, using data analysis tool in Microsoft Excel. Result of the test is given in the table 5 below.

Table 5: t-Test: Two-Sample Assuming Unequal Variances: Data: Patients rating on Infrastructure component

	Pat-Ac	Pat-Nac
Mean	4.236111	4.258278
Variance	1.230575	0.899514
Observations	144	151
Hypothesized Mean Difference	0	
Df	281	
t Stat	-0.18407	
P(T<=t) one-tail	0.427046	
t Critical one-tail	1.650294	
P(T<=t) two-tail	0.854091	
t Critical two-tail	1.968442	

As the P value (P(T<=t) two-tail = 0.854091) is not less than alpha (??= 0.05), result is **not significant** and null hypothesis (H0-1a) **can not be rejected**.

Testing of Hypothesis H0-1b: To test the null hypothesis (There is no significant difference in the distribution of 'high' and 'not high' rating given to **infrastructure** component, by Pat-Ac and Pat-NAc), a Chi square, test for independence was performed. Result of the test is givenin table 6 below.

* Rating of 4 and 5 is taken as 'high' rating and rating below 4 as 'not high' rating.

Table 6: Cross tab of rating on infrastructure components by patients and accreditation status of hospital

			Rating		Total
			High	Not High	
Accreditation_status	Accredited	Count	119	25	144
		Expected Count	118.1	25.9	144.0
		% within Accreditation_status	82.6%	17.4%	100.0%
	Not Accredited	Count	123	28	151
		Expected Count	123.9	27.1	151.0
		% within Accreditation_status	81.5%	18.5%	100.0%
Total		Count	242	53	295
		Expected Count	242.0	53.0	295.0
		% within Accreditation status	82.0%	18.0%	100.0%

Table 7: Chi-Square Tests Values

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.070[a]	1	.792		
Continuity Correction[b]	.013	1	.910		
Likelihood Ratio	.070	1	.791		
Fisher's Exact Test				.880	.456
N of Valid Cases	295				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.87.
b. Computed only for a 2x2 table

As the Chi-square value is 0.070 and corresponding P value is 0.792, the result is **not significant** at p < 0.05. Hence, null hypothesis – H0-1b **can not be rejected**.

Analysis of data on process component: The summary of data from patients on process component is given in table 8 below.

Table 8: Summary of data from patients on Infrastructure component

	Pat-Ac	Pat-NAc
Sample size (n)	144	151
Mean rating	3.89	3.57
Standard Deviation	1.44	2.05
No. of rating as		
5	57 (39.6%)	56 (37.09%)
4	43 (29.9%)	30 (19.87%)
3	25 (17.4%)	32 (21.19%)
2	9 (6.3%)	10 (6.62%)
1	10 (6.9%)	23 (15.23%)

Testing of null Hypothesis H0-1c: To test the null hypothesis (There is no significant difference in the rating given to **process** component of the hospital, by Pat-Ac and Pat-NAc) t-test (two sample assuming unequal variances) was performed, using data analysis tool in Microsoft Excel. Result of the test is given in the table 9.

Table 9: t-Test: Two-Sample Assuming Unequal Variances: Data: Patients rating on Process component

	Pat-Ac	Pat-Nac
Mean	3.888889	3.569536
Variance	1.442113	2.046799
Observations	144	151
Hypothesized Mean Difference	0	
Df	288	
t Stat	2.080146	
P(T<=t) one-tail	0.019198	
t Critical one-tail	1.650162	
P(T<=t) two-tail	0.038396	
t Critical two-tail	1.968235	

As the P value (P(T<=t) two-tail = 0.038396) is less than alpha (??= 0.05), result is **significant** and null hypothesis (H0-1a) is **rejected**.

Testing of Hypothesis H0-1d: To test the null hypothesis (There is no significant difference in the distribution of 'high' and 'not high' rating given to **process** component, by Pat-Ac and Pat-NAc), a Chi square, test for independence was performed. Result of the test is given in table 10 below.

* Rating of 4 and 5 is taken as 'high' rating and rating below 4 as 'not high' rating.

Table 10: Cross tab of rating on process components by patients and accreditation status of hospital

			Rating		Total
			High	Not High	
Accreditation_status	Accredited	Count	100	44	144
		Expected Count	90.8	53.2	144.0
		% within Accreditation_status	69.4%	30.6%	100.0%
	Not Accredited	Count	86	65	151
		Expected Count	95.2	55.8	151.0
		% within Accreditation_status	57.0%	43.0%	100.0%
Total		Count	186	109	295
		Expected Count	186.0	109.0	295.0
		% within Accreditation_status	63.1%	36.9%	100.0%

Table 11: Chi-Square Tests Values

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.936[a]	1	.026		
Continuity Correction[b]	4.415	1	.036		
Likelihood Ratio	4.960	1	.026		
Fisher's Exact Test				.030	.018
N of Valid Cases	295				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 53.21.
b. Computed only for a 2x2 table

As the Chi-square value is 4.936 and corresponding P value is 0.026, the result is **significant** at $p < 0.05$. Hence, null hypothesis – H0-1d is **rejected**.

Analysis of data on outcome component: The summary of data from patients on outcome component is given in table 12 below

Table 12: Summary of data from patients on Infrastructure component

	Pat-Ac	Pat-NAc
Sample size (n)	144	151
Mean rating	4.24	3.84
Standard Deviation	1.36	1.53
No. of rating as		
5	86 (59.7%)	58 (38.41%)
4	31 (21.5%)	38 (25.17%)
3	12 (8.3%)	30 (19.87%)
2	6 (4.2%)	14 (9.27%)
1	9 (6.3%)	11 (7.28%)

Testing of null Hypothesis H0-1e: To test the null hypothesis (There is no significant difference in the rating given to **outcome** component of the hospital, by Pat-Ac and Pat-NAc) t-test (two sample assuming unequal variances) was performed, using data analysis tool in Microsoft Excel. Result of the test is given in the table 13.

Table 13: t-Test: Two-Sample Assuming Unequal Variances: Data: Patients rating on Outcome component

	Pat-Ac	Pat-Nac
Mean	4.243056	3.84106
Variance	1.360091	1.53457
Observations	144	151
Hypothesized Mean Difference	0	
Df	293	
t Stat	2.870829	
P(T<=t) one-tail	0.002196	
t Critical one-tail	1.650071	
P(T<=t) two-tail	0.004392	
t Critical two-tail	1.968093	

As the P value (P(T<=t) two-tail = 0.004392) is less than alpha (??= 0.05), result is **significant** and null hypothesis (H0-1a) is **rejected**.

Testing of Hypothesis H0-1f: To test the null hypothesis (There is no significant difference in the distribution of 'high' and 'not high' rating given to **outcome** component, by Pat-Ac and Pat-NAc), a Chi square, test for independence was performed. Result of the test is given in table 14 below. *Rating of 4 and 5 is taken as 'high' rating and rating below 4 as 'not high' rating.

Table 14: Cross tab of rating on process components by patients and accreditation status of hospital

			Rating		Total
			High	Not High	
Accreditation_status	Accredited	Count	117	27	144
		Expected Count	104.0	40.0	144.0
		% within Accreditation_status	81.3%	18.8%	100.0%
	Not Accredited	Count	96	55	151
		Expected Count	109.0	42.0	151.0
		% within Accreditation_status	63.6%	36.4%	100.0%
Total		Count	213	82	295
		Expected Count	213.0	82.0	295.0
		% within Accreditation_status	72.2%	27.8%	100.0%

Table 15: Chi-Square Tests Values

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.472[a]	1	.001		
Continuity Correction[b]	10.608	1	.001		
Likelihood Ratio	11.664	1	.001		
Fisher's Exact Test				.001	.001
N of Valid Cases	295				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 40.03.
b. Computed only for a 2x2 table

As the Chi-square value is 11.472 and corresponding P value is 0.001, the result is **significant** at p < 0.05. Hence, null hypothesis – H0-1f is **rejected**.

Analysis of data on overall hospital rating: The summary of data from patients on overall hospital rating is given Table 16 below

Table 16: Summary of data from patients on Infrastructure component

	Pat-Ac	Pat-NAc
Sample size (n)	144	151
Mean rating	4.20	3.85
Standard Deviation	1.41	1.61
No. of rating as		
5	84 (58.3%)	63 (41.72%)
4	28 (19.4%)	32 (21.19%)
3	17 (11.8%)	30 (19.87%)
2	7 (4.9%)	14 (9.27%)
1	8 (5.6%)	12 (7.95%)

Testing of null Hypothesis H0-1g: To test the null hypothesis (There is no significant difference in the rating given to **overall** hospital, by Pat-Ac and Pat-NAc) t-test (two sample assuming unequal variances) was performed, using data analysis tool in Microsoft Excel. Result of the test is given in the table 17.

Table 17: t-Test: Two-Sample Assuming Unequal Variances: Data: Patients' overall rating for hospital

	Pat-Ac	Pat-Nac
Mean	4.201389	3.854305
Variance	1.406711	1.618631
Observations	144	151
Hypothesized Mean Difference	0	
Df	293	
t Stat	2.424837	
P(T<=t) one-tail	0.00796	
t Critical one-tail	1.650071	
P(T<=t) two-tail	0.01592	
t Critical two-tail	1.968093	

As the P value (P(T<=t) two-tail = 0.01592) is less than alpha (??= 0.05), result is **significant** and null hypothesis (H0-1g) is **rejected**.

Testing of Hypothesis H0-1h: To test the null hypothesis (There is no significant difference in the distribution of 'high' and 'not high' rating given to **overall** hospital**;** by Pat-Ac and Pat-NAc), a Chi square, test for independence was performed. Result of the test is given in Table 18 below.

* Rating of 4 and 5 is taken as 'high' rating and rating below 4 as 'not high' rating.

Table 18: Cross tab of overall rating for hospitals given by patients and accreditation status of hospital

			Rating		Total
			High	Not High	
Accreditation_status	Accredited	Count	112	32	144
		Expected Count	101.0	43.0	144.0
		% within Accreditation_status	77.8%	22.2%	100.0%
	Not Accredited	Count	95	56	151
		Expected Count	106.0	45.0	151.0
		% within Accreditation_status	62.9%	37.1%	100.0%
Total		Count	207	88	295
		Expected Count	207.0	88.0	295.0
		% within Accreditation status	70.2%	29.8%	100.0%

Table 19: Chi-Square Tests Values

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.780[a]	1	.005		
Continuity Correction[b]	7.086	1	.008		
Likelihood Ratio	7.861	1	.005		
Fisher's Exact Test				.007	.004
No of Valid Cases	295				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 40.03.
b. Computed only for a 2x2 table

As the Chi-square value is 7.780 and corresponding P value is 0.005, the result is **significant** at $p < 0.05$. Hence, null hypothesis – H0-1h is **rejected**.

Conclusion

- The data and its analysis shows following result the mean rating given to infrastructure component by patients of accredited hospital do not significantly differ from the mean rating given by patients of non-accredited hospital. The distribution of high and not high rating also do not differ between patients of accredited and non-accredited hospital
- The analysis of process component of hospital, shows significant difference in ratings given by patients of accredited and non-accredited hospital
- Differences in mean rating of outcome by respondents from accredited and by respondents from non-accredited hospitals was also found to be statistically significant, with rating by respondents from accredited group being significantly higher
- The analysis of overall rating has shown significant difference in ratings by respondents from accredited and non-accredited hospital in both the categories. The distribution of 'high' rating was also found to be higher in accredited group respondents

Thus, it could be concluded that except for infrastructure, the other components of quality, i.e. process and outcome, has been perceived better by patients from accredited hospital in comparison to non-accredited hospitals. The overall response on hospital was also better for accredited hospitals.

Recommendation

While the accreditation system do seem to improve process and outcomes in view of patients and healthcare providers, the infrastructure component is not effected. As infrastructure is also a basic component of quality of care, the accreditation system must focus more on improving this component of the hospital.

Limitation

The study has some limitations which should be taken into consideration while interpreting the results

- The effect on quality has been measured by the rating given by patients. This may differ from the technical data on infrastructure, process and outcome.
- The study is based on a cross sectional data and do not features in time series data. Hence study cannot comment upon whether the data collected at the time of collection holds true across the time.

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