SERVQUAL (Service Quality) vs NPS (Net Promoter Score) : A Comparative Study of Private and Public Hospitals in Sikkim

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Abstract

Background : This study is the first of its kind, which has used the SERVQUAL model in conjunction with the Net Promoter Score approach to compare the service delivery of a private and a public hospital in the Himalayan state of Sikkim.

Methods : The study was cross-sectional and causal, carried out from March – June 2018. This study has used the SERVQUAL gap model given by Parasuraman, Berry, and Zeithaml with the Net Promoter Score approach given by Reichheld. The statistical tools used in this study are mean, Cronbach's alpha, and independent sample *t*-test. The statistical packages used are MS EXCEL 2016 and SPSS V. 17.

Results : A statistical significant difference was found for the tangibility and empathy dimensions between the public and private hospitals, where the service quality gap score was higher for the public hospital in both the dimensions. The Net Promoter Score for the public hospital was –3% and in case of the private hospital, the NPS was 18%.

Conclusion : This study concludes that both the hospitals needed improvement ; however, the private hospital needed improvement, especially in the responsiveness, reliability, and assurance dimensions ; whereas, the public hospital needed improvement in all the five dimensions of SERVQUAL. This study also concludes that SERVQUAL and NPS approaches should not be looked as competing approaches, but these two approaches shall be used in conjunction to get a better understanding of the problem areas.

Keywords : SERVQUAL, Net Promoter Score, hospital, Sikkim, quality

India is a country of 1.32 billion people with a health system rank of 145th among 195 countries (Fullman et al., 2018). In India, the private sector is the dominant sector, which has also contributed 70% of the increase in total beds in hospitals during the period from 2002 – 2010. Generally, it is an accepted view among the Indian population that few Indian private hospital chains are good in providing superior patient-friendly services and are able to attain quality medical outcomes ; whereas, most of the public hospitals are characterised by poor quality and lack of infrastructure. In addition to that, India is witnessing a growing preference for private hospitals in

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comparison to public hospitals (Almeida, Benrey, Freimark, Houck, Liu, Messing, Tan, & Weiss, 2017).

Hospitals fall under the service sector, and generally, people don't prefer to visit hospitals unless the patient condition calls for it. Moreover, hospitals are generalized as a place where only people in pain and discomfort go to get relief. Despite that, hospitals are bestowed with the responsibility to provide superior and quality healthcare services, and with the adoption of proven quality tools, they can save more number of human lives (Samim, Singh, & Ravi, 2020). Moreover, in India, private hospitals have broken the traditional perception towards hospitals and came up with many service delivery related improvements by making services faster and error-free. The pieces of evidence include newer hospital buildings designed with a patient-centred approach. All these efforts are done to improve the patients' experience, which can be determined by the service quality felt by the patients. Analyzing services from a service quality framework gives a direction to the management to focus its resources to improve the weak areas.

This study on service quality of a hospital is the first of its kind in the Himalayan state of Sikkim. Studies of this type should be carried out frequently so that the hospital administration of both private and public hospitals can identify their areas of inadequacy to bring out improvements, enabling health care delivery with an acceptable service quality to its patients, which will result into an increased base of loyal patients and better health outcomes.

Literature Review

In the present times, healthcare quality does not remain a matter of choice for the providers, but it is considered as one of the key patient rights and a critical success factor. Most of the hospitals and healthcare providers in India have started to consider healthcare service quality as a strategic tool to excel. Even after decades of research on the service quality aspects in hospitals, no best model (the ultimate one) can be determined. Some of the most researched models on service quality in hospitals include SERVQUAL (Parasuraman, Berry, & Zeithaml, 1991), SERVPERF (Lonial, Menezes, Tarim, Tatoglu, & Zaim, 2010), HEALTHQUAL (Lee, 2017), PubHosQual (Aagja & Garg, 2010), and Grönroos service quality model (Grönroos, 1984). In addition to that, in 2003, Reichheld (Kristensen & Eskildsen, 2014) claimed that NPS (Net Promoter Score) should be the only number one should be worried about. However, the NPS is a simplified measure of customer loyalty. Hence, based on the work of Kristensen and Eskildsen (2014), the shortcomings of NPS as a tool are enlisted below :

(i) NPS is sensitive to the choice of cut off points while collapsing the categories.

(ii) The standard NPS does not include the possibility of having a *no answer*.

(iii) NPS is an oversimplification of measuring customer loyalty.

It is an accepted norm that healthcare quality should be assessed from the patients' perspective (Izadi, Jahani, Rafiei, Masoud, & Vali, 2013). SERVPERF measures the patients' perception about the services ; whereas, SERVQUAL measures both the expectation and perception of services. The service quality model (SERVQUAL) consists of five domains – reliability, assurance, tangibility, empathy, and responsiveness (RATER). The SERVQUAL model is found to be reliable and valid for hospital use (Pekkaya, İmamoğlu, & Koca, 2017). The SERVQUAL model is applied in various service sectors such as airlines (Min & Min, 2016), electricity sector (Satapathy 2016), insurance sector (Panigrahi, Azizan, & Khan, 2018 ; Singh, Ravi, & Lepcha, 2019), telecommunications sector (Rajeswari, Srinivasulu, & Thiyagarajan, 2016), banking sector (Chandel & Vij, 2019), education sector (Gupta, 2016), and hospitals (Ali, Basu, & Ware, 2018 ; Krishnamoorthy, Karthikeyan, & Prakash, 2016).

Quality and customer loyalty are related as both are the outcome variables and determine the ability to withstand the competitive environment and likelihood of success in that environment (Kevork & Vrechopoulos,

2009), which means if the customer is satisfied with the quality of services received, he/she will remain loyal to the provider. The objective of this study is to measure the differences in the service quality in both private and public hospitals and to measure the Net Promoter Score for both private and public hospitals.

Materials and Methods

The SERVQUAL gap model is used in this study to analyze the gap between expectations and perceptions of both the private hospital users and public hospitals users, for that, a questionnaire is prepared based on the literature review. The content validity was ascertained by four industry experts and the internal consistency of the questionnaire was ascertained by using Cronbach's alpha, which was found to be 0.98, higher than the threshold of 0.7 (Taber, 2018).

This study is a survey-based cross-sectional research carried out for four months in the period from March – June 2018. A predesigned, pretested, structured questionnaire was used, participants' selection was done by following systematic random sampling, and face-to-face interview techniques were used for data collection. The following null hypotheses are formulated :

🖎 **$H_0 1$:** There is no difference in the gap score of tangibility dimension between private and public hospitals.

🖎 **$H_0 2$:** There is no difference in the gap score of reliability dimension between private and public hospitals.

🖎 **$H_0 3$:** There is no difference in the gap score of responsiveness dimension between private and public hospitals.

🖎 **$H_0 4$:** There is no difference in the gap score of assurance dimension between private and public hospitals.

🖎 **$H_0 5$:** There is no difference in the gap score of empathy dimension between private and public hospitals.

Questionnaire Designing

The questionnaire was divided into two parts. The first part comprised of patients' demographic information including aspects such as patient's gender, age, area, district, educational level, marital status, length of stay, frequency of visit to the hospital, and their annual income level. The second part was about the SERVQUAL dimensions – Reliability, assurance, tangibility, empathy, and responsiveness. The Part B of the questionnaire consisted of a total of 45 items. A set of 22 questions each for expectations and perceptions encompassing the SERVQUAL dimensions was prepared and the data were collected using a 5-point Likert's scale (where 1 = *strongly disagree*, 2 = *agree*, 3 = *neutral*, 4 = *disagree*, 5 = *strongly agree*) to capture their expressions and one ultimate question for measuring the Net Promoter Score was used on a scale of 1 – 10.
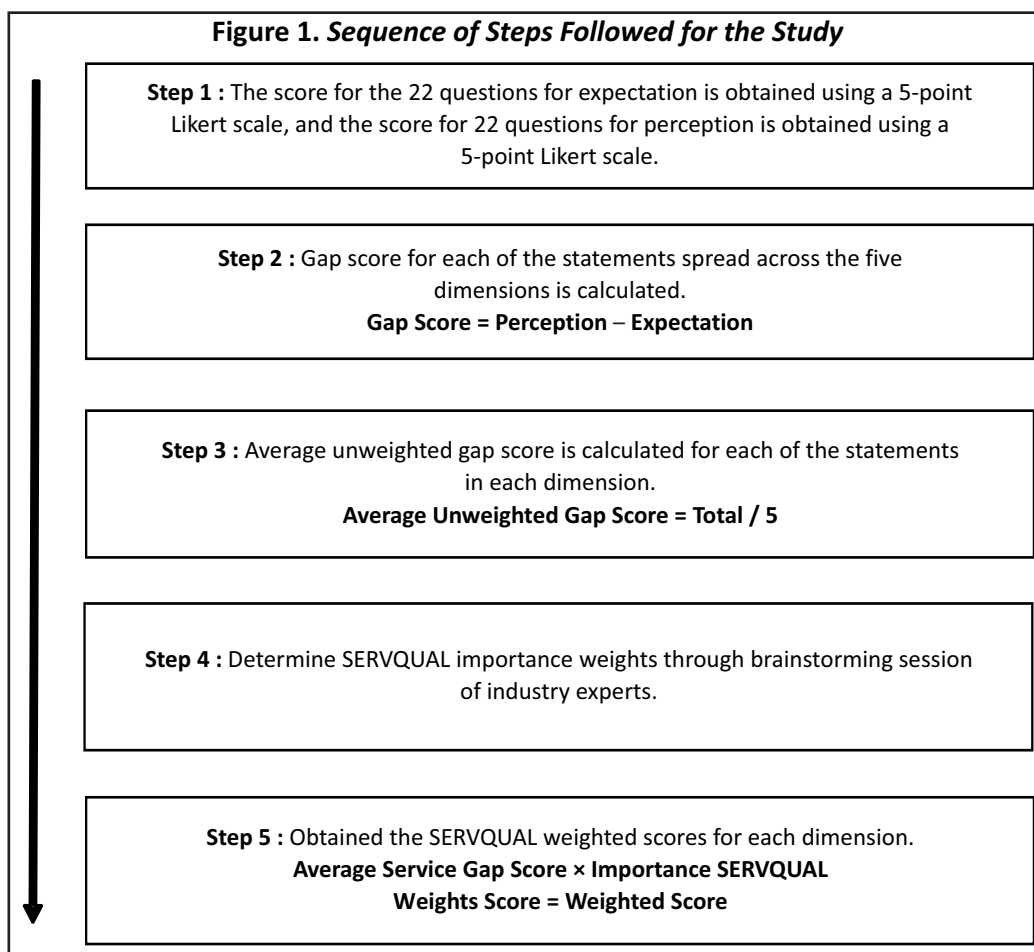
The questionnaires were initially prepared in the English language and then translated into the regional Nepali language with the help of a language expert and lastly, it was translated back to the English language to check for discrepancies. The pilot study was carried out on 20 respondents to assess the suitability of the questionnaire. Survey method was used for the data collection. The criterion such as patients admitted in only general wards, well versed with the Nepali language, stayed in the hospital for more than three days, age above 18 years, and consent for participation in the study were used as inclusion criterion. The data collection were done at the time of discharge of the patients. A total of 275 respondents were approached for both government and private hospitals, out of which only 255 gave consent to participate ; hence, the response rate was 90%. However, out of the filled 250 questionnaires, 50 filled questionnaires were discarded due to incomplete data, which resulted into 100 respondents each for private and public hospitals (refer to Figure 1).

The objectives of the study are :

Table 1. *Details of the Questionnaire*

S. No.	Domain	Question Sr. No.	Item Statement (Expectation)	Cronbach's Alpha
1	*Expectations – Tangibility*	1	The hospital will have state of the art equipments.	**.783**
		2	The physical facilities at the hospital will have an attractive appearance.	
		3	There will be presence of adequate signage to aid with directions.	
		4	Medical stores will be open 24×7.	
		5	Personnel will be neat and well dressed.	
2	*Expectations – Reliability*	6	Health care services will be delivered promptly as promised.	.773
		7	There will be a provision for error-free records.	
		8	When the patient has a problem, the hospital will be keen to solve it.	
		9	There will be excellence in getting things right the first time.	
3	*Expectations – Responsiveness*	10	Proper information will be provided to the patients as to when the services will be performed.	.825
		11	The staff will be always willing to help the patients.	
		12	Personnel will never be too busy to respond to patients' requests.	
		13	The concerns of the patients will be solved at the right time.	
4	*Expectations – Assurance*	14	The behaviour of the employees instils confidence in the patients.	.777
		15	Patients will feel safe and secure about their transactions within the hospital.	
		16	Employees will be knowledgeable enough to answer the queries of patients.	
		17	The staff will be courteous towards the patients.	
5	*Expectations – Empathy*	18	The employees will provide individual attention to each patient.	.827
		19	The operating hours will be convenient for all patients.	
		20	The hospital will have the patients' best interest at heart.	
		21	The staff will understand the need of each patient.	
		22	Doctors will deal with the patients in a caring manner.	

S. No.	Domain	Question Sr. No.	Item Statement (Perception)	Cronbach's Alpha
1	*Perception – Tangibility*	23	Hospital has state of the art equipments.	.723
		24	The physical facilities at the hospital have an attractive appearance.	
		25	There are adequate signages to aid with directions.	
		26	Medical stores are open 24 ×7.	
		27	Personnel are neat and well dressed.	
2	*Perception – Reliability*	28	Health care services are delivered promptly as promised.	.713
		29	There is a provision for error-free records.	
		30	The hospital is keen to solve the problems of the patients.	
		31	There is excellence in getting things right the first time.	
3	*Perception – Responsiveness*	32	Proper information is provided as to when the services will be performed.	.842
		33	The staff is willing to help.	
		34	Personnel are never too busy to respond to your requests.	
4	*Perception – Assurance*	35	All your concerns are solved at the right time.	.709
		36	The behaviour of the employees instils confidence in you.	

5	Perception – Empathy	37	You feel safe and secure about your transactions within the hospital.	
		38	Employees are knowledgeable enough to answer your queries.	
		39	The staff is consistently courteous.	.812
		40	The employees provide you with individual attention.	
		41	The operating hours are convenient for you.	
		42	The hospital has your best interest at heart.	
		43	The staff understands your individual needs.	
		44	Doctors deal with you in a caring manner.	
	Net Promoter Score	45	On a scale of 1 – 10, how likely are you to recommend the hospital to your friends or colleagues?	NA
			Overall Scale Cronbach's Alpha	**.908**

Figure 1. *Sequence of Steps Followed for the Study*

Step 1 : The score for the 22 questions for expectation is obtained using a 5-point Likert scale, and the score for 22 questions for perception is obtained using a 5-point Likert scale.

Step 2 : Gap score for each of the statements spread across the five dimensions is calculated.
Gap Score = Perception – Expectation

Step 3 : Average unweighted gap score is calculated for each of the statements in each dimension.
Average Unweighted Gap Score = Total / 5

Step 4 : Determine SERVQUAL importance weights through brainstorming session of industry experts.

Step 5 : Obtained the SERVQUAL weighted scores for each dimension.
Average Service Gap Score × Importance SERVQUAL Weights Score = Weighted Score

(i) To measure the difference between expectations and perception of patients in a government hospital.

(ii) To measure the difference between expectations and perception of patients in a private hospital.

(iii) To calculate the Net Promoter Score for both the hospitals.

(iv) To compare the service quality gaps in all five dimensions between private and public hospitals.

The null hypothesis formulated for the study is that there is no difference between the service quality gap scores in all the five dimensions perceived by patients in both – the government hospital and the private hospital ; whereas, the alternative hypothesis is that there is a difference between the service quality gap score perceived by the patients of both the government hospital and the private hospital.

Calculation of Net Promoter Score

The question, "On a scale from 0 – 10, how likely are you to recommend a product or service to a colleague, family member, or friend?" is used to calculate the Net Promoter Score separately for the private hospital and the government hospital.

The Net Promoter Score categorizes the respondents into three categories (see Table 2).

Table 2. *Net Promoter Score Classification*

Category	Score	Characteristics
Promoters	9,10	They are the ones who like the services of the hospital and are willing to spread positive words regarding the hospital.
Passives	7,8	Their level of satisfaction is mediocre as they are not sure about how they feel about the services they have received and are reluctant to promote the hospital.
Detractors	6 or lower	They are the ones who are negative about the service industry. They depict a lack of interest in promoting the hospital but instead, they have a potential for ruining the reputation of the hospital by negative word of mouth.

Finally, 100 questionnaires (each for government hospital and private hospital) were considered for the analysis. The surveyed questionnaire was analyzed with the help of MS Excel 2016 and SPSS.V 20.

Analysis and Results

Demographic data analysis of public hospital patients (Table 3) reveals that 64% of the respondents were females. Similarly, 65% of the respondents belonged to rural areas of Sikkim. Out of all the four districts of the state, around 55% respondents utilizing hospital services belonged to the East Sikkim district, which is due to the proximity factor, as the hospital is also situated in the same district. In terms of educational level, majority of the respondents (47%) possessed only secondary school level of education. Lastly, around 98% of the respondents reported that their annual income was less than INR 2 lakhs per annum.

On the contrary, in the private hospital, the male respondents were more in number (54%), (refer to Table 4) which can be because of the cultural factor of giving priority to health issues of males over health issues of females, thus more men were coming to the private hospital which, in general, is considered superior to the public hospital. However, in the private hospital also, patients representing rural areas were 61%. This hospital is also located in East Sikkim, and hence, 62% of the patients were from that district only. In the private hospital, based on educational level, the largest group was of the people who had completed education till the secondary

Table 3. Demographic Details of the Public Hospital Respondents

Parameters	Demographic Profile	No. of Respondents	Percentage
Gender	Male	36	36.0
	Female	64	64.0
Area	Urban	35	35.0
	Rural	65	65.0
District	North Sikkim	9	9.0
	South Sikkim	11	11.0
	East Sikkim	55	55.0
	West Sikkim	24	24.0
	Others	1	1.0
Educational Level	Uneducated	26	26.0
	Primary school	20	20.0
	Secondary school	47	47.0
	Graduate	6	6.0
	Post-Graduate	1	1.0
Annual income	Less than 2 lakhs	98	98.0
(in INR)	2–5 lakhs	2	2.0

Table 4. Demographic Details of the Private Hospital Respondents

Parameters	Demographic Profile	No. of Respondents	Percentage
Gender	Male	54	54.0
	Female	46	46.0
Area	Urban	39	39.0
	Rural	61	61.0
District	North Sikkim	9	9.0
	South Sikkim	18	18.0
	East Sikkim	62	62.0
	West Sikkim	8	8.0
	Others	3	3.0
Educational Level	Uneducated	23	23.0
	Primary school	23	23.0
	Secondary school	38	38.0
	Diploma	4	4.0
	Graduate	10	10.0
	Post-Graduate	2	2.0
Annual income	Less than 2 lakhs	95	95.0
(in INR)	2–5 lakhs	4	4.0
	More than 5 Lakhs	1	1.0

school level (38% respondents) followed by uneducated patients (23%), and patients educated upto the primary school level (23%).

The gap score is calculated using the formula :

Gap Score = Expectation Score – Perception Score

Table 5. *Expectation & Perception Mean Score and Quality Gap Score for the Public Hospital*

Sl. No.	Expectation	Mean Score	Perception	Mean Score	Gap Score
1	The hospital will have state of the art equipments.	4.22	The hospital has state of the art equipments.	3.81	–0.41
2	The physical facilities in the hospital will have an attractive appearance.	4.00	The physical facilities in the hospital have an attractive appearance.	3.45	–0.55
3	There is presence of adequate signage to aid with directions.	3.99	There are adequate signage to aid with directions.	3.40	–0.59
4	The pharmacy will be open 24×7, including the availability of prescribed medicines.	4.56	The pharmacy is open 24×7, including the availability of prescribed medicines.	2.43	–2.13
5	Personnel will be neat and well dressed.	4.29	Personnel are neat and well dressed.	3.49	–0.8
	AVERAGE	**4.21**	**AVERAGE**	**3.32**	**–0.896**
6	Health care services will be delivered promptly as promised.	4.26	Health care services are delivered promptly as promised.	3.75	–0.51
7	There will be a provision for error-free records.	3.99	There is a provision for error free records.	3.94	–0.05
8	When the patient has a problem, the hospital will be keen to solve it.	4.10	The hospital is keen to solve the problems of the patients.	3.40	–0.7
9	There will be excellence in getting things right the first time.	4.21	There is excellence in getting things right the first time.	3.91	–0.3
	AVERAGE	**4.14**	**AVERAGE**	**3.75**	**–0.39**
10	Proper information will be provided to the patients as to when the services will be performed.	4.25	Proper information is provided as to when the services will be performed.	3.69	–0.56
11	The staff will be always willing to help the patients.	4.13	The staff is willing to help.	3.79	–0.34
12	Personnel will never be too busy to respond to patients' requests.	4.11	Personnel are never too busy to respond to patients' requests.	3.72	–0.39
13	The concerns of the patients will be solved at the right time.	4.07	All your concerns are solved at the right time.	3.52	–0.55
	AVERAGE	**4.14**	**AVERAGE**	**3.68**	**–0.46**
14	The behaviour of the employees will instill confidence in the patients.	4.06	The behaviour of the employees instils confidence in you.	3.64	–0.42
15	Patients will feel safe and secure about their transactions within the hospital.	3.92	You feel safe and secure about your transactions within the hospital.	3.55	–0.37
16	Employees will be knowledgeable enough to answer the queries of the patients.	4.07	Employees are knowledgeable enough to answer your queries.	3.72	–0.35
17	The staff will be courteous towards the patients.	3.80	The staff is consistently courteous.	3.68	–0.12
	AVERAGE	**3.96**	**AVERAGE**	**3.64**	**–0.315**
18	The employees will provide individual attention to each patient.	3.89	The employees provide you with individual attention.	3.40	–0.49
19	The operating hours will be convenient for all patients.	4.35	The operating hours are convenient for you.	3.47	–0.88
20	The hospital will have the patients' best interest at heart.	4.13	The hospital has your best interest at heart.	3.59	–0.54
21	The staff will understand the needs of each patient.	4.16	The staff understands your individual needs.	3.60	–0.56
22	Doctors will deal with the patients in a caring manner.	4.50	Doctors deal with you in a caring manner.	4.18	–0.32
	AVERAGE	**4.21**	**AVERAGE**	**3.65**	**–0.558**

Table 6. *Expectation & Perception Mean Score and Quality Gap Score for the Private Hospital*

Sl. No.	Expectation	Mean Score	Perception	Mean Score	Gap Score
1	The hospital will have state of the art equipments.	3.99	The hospital has state of the art equipments.	3.75	–0.24
2	The physical facilities in the hospital will have an attractive appearance.	3.80	The physical facilities in the hospital have an attractive appearance.	3.80	0
3	There is presence of adequate signage to aid with directions.	3.96	There are adequate signages to aid with directions.	3.81	–0.15
4	The pharmacy will be open 24×7, including the availability of prescribed medicines.	4.07	The pharmacy is open 24×7, including the availability of prescribed medicines.	3.43	–0.64
5	Personnel will be neat and well dressed.	4.01	Personnel are neat and well dressed.	3.58	–0.43
	AVERAGE	**3.966**	**AVERAGE**	**3.674**	**–0.292**
6	Health care services will be delivered promptly as promised.	3.79	Health care services are delivered promptly as promised.	3.51	–0.28
7	There will be a provision for error-free records.	3.90	There is a provision for error free records.	3.59	–0.31
8	When the patient has a problem, the hospital will be keen to solve it.	3.89	The hospital is keen to solve the problems of the patients.	3.66	–0.23
9	There will be excellence in getting things right the first time.	3.81	There is excellence in getting things right the first time.	3.63	–0.18
	AVERAGE	**3.85**	**AVERAGE**	**3.60**	**–0.28**
10	Proper information will be provided to the patients as to when the services will be performed.	3.82	Proper information is provided as to when the services will be performed.	3.51	–0.31
11	The staff will be always willing to help the patients.	3.90	The staff is willing to help.	3.52	–0.38
12	Personnel will never be too busy to respond to patients' requests.	3.89	Personnel are never too busy to respond to patients' requests.	3.56	–0.33
13	The concerns of the patients will be solved at the right time.	3.68	All your concerns are solved at the right time.	3.36	–0.32
	AVERAGE	**3.82**	**AVERAGE**	**3.49**	**–0.335**
14	The behaviour of the employees will instill confidence in the patients.	3.92	The behaviour of the employees instils confidence in you.	3.76	–0.16
15	Patients will feel safe and secure about their transactions within the hospital.	3.95	You feel safe and secure about your transactions within the hospital.	3.82	–0.13
16	Employees will be knowledgeable enough to answer the queries of the patients.	3.89	Employees are knowledgeable enough to answer your queries.	3.78	–0.11
17	The staff will be courteous towards the patients.	3.81	The staff is consistently courteous.	3.52	–0.29
	AVERAGE	**3.89**	**AVERAGE**	**3.72**	**–0.17**
18	The employees will provide individual attention to each patient.	3.73	The employees provide you with individual attention.	3.72	–0.01
19	The operating hours will be convenient for all patients.	4.01	The operating hours are convenient for you.	3.36	–0.65
20	The hospital will have the patients' best interest at heart.	3.83	The hospital has your best interest at heart.	3.56	–0.27
21	The staff will understand the needs of each patient.	3.94	The staff understands your individual needs.	3.66	–0.28
22	Doctors will deal with the patients in a caring manner.	4.35	Doctors deal with you in a caring manner.	4.09	–0.26
	AVERAGE	**3.97**	**AVERAGE**	**3.68**	**–0.294**

The results of the gap score analysis are presented in the Table 5 and Table 6 for both the public and private hospitals, respectively.

The average unweighted gap score (refer to Table 7) is calculated by dividing the total of the gap score by the number of domains, that is, 5. The average unweighted gap score for the government hospital is presented in Table 7. Similarly, the average unweighted gap score for the private hospital was also calculated in the same way and is presented in Table 8.

To decide the weights of the five dimensions of service quality based on its importance in the healthcare industry, the sheet containing the names of the domains were given to 14 industry experts to give each dimension a score out of 100 (Hirmukhe, 2012). The calculated SERVQUAL importance weights are presented in Table 9.

To obtain the SERVQUAL weighted score for each dimension, the following formula is used :

Weighted Score = Average service gap score × Importance SERVQUAL weight score

Table 7. *Average Unweighted Gap Score of Government Hospital*

Dimensions	Statements	Average Gap Score
Tangibility	5	–0.896
Reliability	4	–0.39
Responsiveness	4	–0.46
Assurance	4	–0.315
Empathy	5	–0.558
Total	22	–2.619
Average Unweighted SERVQUAL Score		**–0.5238**

Table 8. *Average Unweighted Gap Score of Private Hospital*

Dimensions	Statements	Average Gap Score
Tangibility	5	–0.292
Reliability	4	–0.28
Responsiveness	4	–0.335
Assurance	4	–0.17
Empathy	5	–0.294
Total	22	–1.37
Average Unweighted SERVQUAL Score		**–0.2747**

Table 9. *SERVQUAL Importance Weights*

Dimensions	Importance Weights
Tangibility	19.68
Reliability	20.93
Responsiveness	19.16
Assurance	20.55
Empathy	14.68
TOTAL	**100 points**

Table 10. *Average Weighted Score for the Public Hospital*

Dimensions	Statements	Avg. Score	Importance Weights	Weighted Score
Tangibility	5	−0.896	19.68	−17.63
Reliability	4	−0.39	20.93	−8.16
Responsiveness	4	−0.46	19.16	−8.81
Assurance	4	−0.315	20.55	−6.47
Empathy	5	−0.558	14.68	−8.19
Total	22	−2.619	100	−49.27
Average Weighted SERVQUAL Score				**−9.85**

Table 11. *Average Weighted Score for the Private Hospital*

Dimensions	Statements	Avg. Gap Score	Importance Weights	Weighted Score
Tangibility	5	−0.292	19.68	−5.75
Reliability	4	−0.28	20.93	−5.86
Responsiveness	4	−0.335	19.16	−6.42
Assurance	4	−0.17	20.55	−3.49
Empathy	5	−0.294	14.68	−4.32
Total	22	−1.37	100	−25.83
Average Weighted SERVQUAL Score				**−5.17**

Figure 2. *Average Weighted Gap Score for Both Hospitals*

Figure 2 : Average Weighted Gap Score for Both Hospitals

	TANGIBILITY	RELIABILITY	RESPONSIVENESS	ASSURANCE	EMPATHY
Public Hospital WEIGHTED SCORE	-17.63	-8.16	-8.81	-6.47	-8.19
Private Hospital WEIGHTED SCORE	-5.75	-5.86	-6.42	-3.49	-4.32
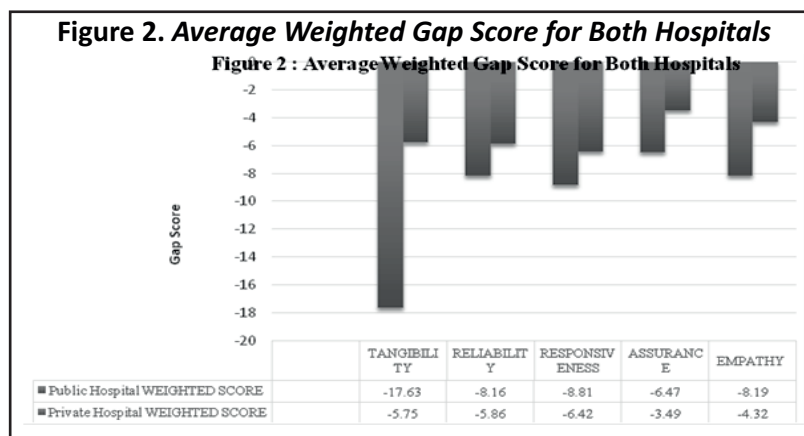
In the next step, the average weighted score is calculated by using the following formula :

Average weighted score = Total weighted score / 5

The calculated average weighted score for both the public and private hospitals is presented in Table 10 and Table 11, respectively.

To compare the gap in both the public and private hospitals, a bar graph is drawn for the average weighted score (Figure 2). From the Figure 2, it can be inferred that the gap for service quality is higher in the public hospital in

Table 12. *Independent Sample t-test*

Hypothesis		Hospital Type	N	Mean	Std. Deviation	Significance Value	Status
$H_0 1$	TAN_AVG	Private Hospital	100	−.2920	.81423	.000	Rejected
		Public Hospital	100	−.8900	.56738		
$H_0 2$	REL_AVG	Private Hospital	100	−.2500	.91770	.162	Accepted
		Public Hospital	100	−.3975	.51012		
$H_0 3$	RES_AVG	Private Hospital	100	−.3350	.99190	.292	Accepted
		Public Hospital	100	−.4575	.60098		
$H_0 4$	ASS_AVG	Private Hospital	100	−.1725	.87523	.206	Accepted
		Public Hospital	100	−.3100	.64071		
$H_0 5$	EMP_AVG	Private Hospital	100	−.2940	.93569	.020	Rejected
		Public Hospital	100	−.5560	.61666		

comparison to the private hospital in all the five dimensions of tangibility, reliability, responsiveness, assurance, and empathy. Similarly, in the public hospital, the highest gap is seen for tangibility, while the least gap is seen for the assurance dimension ; whereas, in the private hospital, the highest gap is seen for responsiveness and least is seen for assurance. Moreover, for both the hospitals, the negative quality gaps indicate that the expectations of the patients exceed their perceptions towards the healthcare services received by them in both the sample hospitals.

Furthermore, to test the null hypothesis of no difference in mean scores of service quality gap in both the hospitals, the independent sample *t*-test is performed. The results reveal that the public hospital patients' experienced gap score for tangibility $(−.89 ± .56)$ and empathy $(−.55 ± .61)$ dimensions is statistically significantly higher compared to the gap score felt by patients of the private hospital in the tangibility $(−.29 ± .81)$ and empathy $(−.29 ±93)$ dimensions (refer to Table 12) $[t (198) = 6.02, p = .00$ and $t (198) = 2.33, p = .02$ respectively]. There is no statistically significant difference for the service quality gap scores in the dimensions – reliability, responsiveness, and assurance in the patients of the sample private hospital and public hospital.

The data collected for the ultimate question of Net Promoter Score is classified into three categories : promoters, passives, and detractors. The following formula is used to calculate the Net Promoter Score :

Net Promoter Score = Percentage of Promoters – Percentage of Detractors

The net promoter score for the public hospital is –3%, that is, 33% (Promoters) – 36 % (Detractors), which means that for the public hospital, the number of promoters was less than the number of detractors, On the contrary, the private hospital's Net Promoter Score is 18 %, that is, 42% (Promoters) – 24% (Detractors). Hence, it can be seen that in case of the private hospital, the number of promoters is more than the number of detractors.

Discussion

Lyngdoh (2015) highlighted that Sikkim is the only state in India to achieve the national norms for primary health centres and the heavy dependence on primary health centres and community health centres. Aspects of availability of healthcare services and quality of healthcare services delivered should be looked at as two different areas. In this study, it is evident that both the private hospital and the public hospital failed in meeting the expectations of the patients. However, the private hospital has performed better in the dimensions of tangibility and empathy, which is because of the reason that in private hospitals, red-tapism and bureaucracy are less, resulting into faster decision making regarding the up-gradation of infrastructure. In addition to that, staff in a private hospital is more

empathetic to patients as they know that the patients can give negative feedback, which can harm the future aspirations of the staff. However, the staff in public hospitals is indifferent to the patients as their appraisal is unaffected by patients' feedback. Furthermore, in this study, it is found that there is difference between the private and public hospitals in the state of Sikkim (India) in the tangibility and empathy dimensions. In the public hospital, the service gap for tangibility and empathy dimensions is higher and is found to be statistically significant than the gap in the private hospital. This finding only is in contrast to a previous study done in a developing country Iran (Aagja & Garg, 2010) in which the difference was found for all the five dimensions, highlighting that the private hospital had outperformed the public hospital in all the five dimensions. However, in a similar type of study done in Ghana (Kwateng, Lumor, & Acheampong, 2017), the differences were found in the dimensions – tangibility, responsiveness, and assurance, but not for the empathy dimension.

Additionally, the Net Promoter Score (NPS) for the public hospital is found to be – 3% in comparison to the Net Promoter Score of 18% for the private hospital. There is no established cut off level of Net Promoter Score for the hospital industry, but a negative Net Promoter Score signifies a poor state of affairs in an organization and warrants for major improvements ; whereas, a Net Promoter Score above 30 is considered good and a Net Promoter Score above 70 is considered as an absolute ideal state for an organization (Grigore, 2020). Considering that, it can be said that in the public hospital, based on the NPS, there are many improvement areas in all the five dimensions ; in case of the private hospital, improvements are needed in the areas of responsiveness, reliability, and assurance dimensions as 18% patients were willing to promote the private hospital, but the service gap experienced by them in the public hospital is also found in the private hospital.

In the end, it can be said that the SERVQUAL has helped in narrowing down the priority areas. This needs to be followed by suitable interventions to attain improvement. These interventions will improve the perceived service quality, which also has the potential to improve customer engagement, and customer engagement is also the predecessor of customer loyalty (Quynh, 2019). Lastly, the Net Promoter Score can be used to assess the overall improvement and customer loyalty. Moreover, this combination of SERVQUAL with the Net Promoter Score can be utilized in other healthcare segments such as home healthcare. Home healthcare is a new service segment with huge potential and is just one decade old in India (Singh, 2017).

Conclusion and Managerial Implications

This study is a first of its kind, which has attempted to compare service quality approach with Net Promoter Score approach in the hospital industry. From the service quality approach, it can be concluded that the service quality gap model is a robust model which helps in identification of dimensions where improvement is required, however, the findings are specific to the setting where the study is carried out and cannot be generalized to other settings. In addition to that, this study exposes the sorry state of affairs in both the private and public hospitals in the state of Sikkim, where the private hospital is found to be marginally better than the public hospital. However, there can be huge improvements if efforts are carried out and directed in the right direction. This study also concludes that "SERVQUAL" and "Net Promoter Score" approach should not be used in isolation but together as both these approaches are complementary to each other in which the NPS presents the status and direction of loyalty among the patients, and the SERVQUAL identifies the improvement areas. This study is unique as it is the first study which has used SERVQUAL in conjunction with the Net Promoter Score for addressing service quality and customer loyalty related uses in the hospital sector.

Healthcare managers can use the SERVQUAL model to identify the priority areas for improving the perceived service quality. Moreover, the application of the Net Promoter Score is very limited in the Indian hospital industry. Healthcare managers need to start capturing their existing Net Promoter Score and should try to improve it by benchmarking it with the industry leaders. SERVQUAL and Net Promoter Score should be used together, as both of them are complementary to each other.

Limitations of the Study and Scope for Future Research

This study is limited to the state of Sikkim and compares the affairs of two hospitals only. We recommend carrying out a study in the future after implementing the improvement related actions and to again measure the Net Promoter Score and service quality gap, which will establish the utility of using the two approaches together. Additionally, this approach can be used in newer healthcare segments such as home healthcare.

Authors' Contribution

Ankit Singh conceived the idea and formulated the research design. Dr. Ekta Tewari collected the relevant articles, performed the literature review, and also performed the data collection. Priya Ravi performed the data analysis. The overall discussion and analysis for the study were done by Ankit Singh, Dr. Ekta Tewari, and Priya Ravi.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest, or non-financial interest in the subject matter, or materials discussed in this manuscript.

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