

## REVIEW

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# Measuring Patient's Expectations and Realisations Using SERVQUAL: A Review of Oncology Services in Punjab, India

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## Abstract

**Objective:** It is commonly observed that patients hold certain expectations from hospitals and subsequently feel different levels of satisfaction/realisation after getting treatment from healthcare providers. The present study is focused on examining the pre-hospitalization expectations of cancer patients, as well as their experiences (realisation) with healthcare delivery services. The study also investigated the factors that impact the satisfaction levels of individuals with cancer by utilizing an adapted measurement scale of SERVQUAL. **Methods:** A sample of 202 individuals diagnosed with cancer were interviewed. Care was taken to ensure that only those patients who had completed all the requisite treatment procedures were selected for the interviews. All regions of state of Punjab in India, have been included for information. **Result:** The research revealed a notable disparity between the pre-hospitalization expectations of cancer patients regarding the healthcare provisions and the actual delivery (realisation) of such services and the mean difference observed was -1.44. When the difference between expectations and outcomes was observed for the COVID period, the margin widened and the mean difference increased to -2.02. The study also identified six factors that can be utilised to assess patient satisfaction in the Punjab region. **Conclusion:** The study is distinctive in its approach as there is a dearth of research conducted in measuring the level of satisfaction of cancer patients in Punjab state of India. The findings of this study will facilitate cancer hospitals in devising policies that are grounded on the factors that have been identified. Additionally, it will facilitate policymakers in assessing the disparity between the anticipated medical care and the actual medical care that was administered to the patient.

**Keywords:** Cancer patients- expectations- realisations- satisfaction- SERVQUAL

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## Introduction

The World Health Organization announced SARS-CoV-2 and the associated illness COVID-19, a pandemic on March 11, 2020. (WHO, 2020). Over 626 million cases and over 6.56 million deaths had been confirmed worldwide as on 30 October 2022. (WHO COVID-19 dashboard, 2022). However, the real damage of this pandemic was expected to be significantly higher, given the strain on global healthcare systems, which is significantly harming the health of individuals with common ailments (Tanne et al., 2020). Specifically, cancer patients were at a greater risk of death due to the virus and treatment disruptions and delays, caused by the virus. According to the preliminary data from China, people with cancer having COVID-19 were more susceptible to experience serious consequences than those without a cancer illness (Liang et al., 2020). This was later validated by worldwide research (Garassino et al., 2020; Kuderer et al., 2020). Due to delays in cancer diagnoses and the healthcare system's primary focus on combating the pandemic, population-based models predicted that

the epidemic would increase cancer fatalities in the subsequent years (Maringe et al., 2020).

Despite the fact that cancer centres had been functioning under the new standards for some time, nothing was known about how these measures had an impact on the patient satisfaction with health service providers. To date, a majority of publications addressed or surveyed the experience of cancer patients during the pandemic were brief communications or opinion columns (Gregucci et al., 2021). Furthermore, a poll by Cancer Research UK, 2020 indicated a significant fall in the number of patients who rated their care as "excellent". However, it was unclear as to with which aspects of care the patients were dissatisfied with during the treatment. It is pertinent to mention here that patient satisfaction is an important performance indicator for healthcare service providers (Crosier et al., 2012). It is also a fundamental objective for healthcare practitioners, since it immediately reflects the condition of any healthcare facility. As the severity of the pandemic is now low, service providers require clear patient feedback in order to modify policies and improve patient care.

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Recent studies have widely used SERVQUAL model to evaluate patient satisfaction across various nations (Jain and Gupta, 2004; Zarei et al., 2012; Mohammadi-Sardo and Salehi, 2019). Parasuraman et al. (1988) designed an instrument comprising five dimensions and validated it in a variety of service scenarios. Over the period of time, SERVQUAL has been widely used in both the health and non-health service industries (Nelson and Nelson, 1995; Gabbie and Neill, 1996; Lam and Zhang, 1999; O'Connor et al., 2000; Arasli et al., 2005). The SERVQUAL comprises five factors, namely, tangibles, responsiveness, reliability, assurance, and empathy (Parasuraman et al., 1988). One-half of these questions evaluated the respondents' service expectations and the second half evaluated the perceived quality of service provided by a specific service sector institution. The quality of service was determined by assessing the variance between the perceived and expected levels of service (the gap scores) (Lam, 1997). Originally, the SERVQUAL scale was employed (five-point Likert scale) which contained 22 pairs of items. However, several scholars have made modifications to the SERVQUAL model by incorporating additional dimensions and latent constructs that have been shown to possess strong reliability and validity (Chakraborty and Majumdar, 2011). Reidenback and Sondifer-Smallwood (1990) proposed a modified version of SERVQUAL model recognising seven dimensions and discovered patient confidence as a significant factor. Bowers et al. (1994) expanded the five standard dimensions of SERVQUAL by including two additional dimensions, namely caring and patient outcomes, in their study. Gabott and Hogg (1995) argued that caring cannot be regarded as an independent dimension, as it was previously covered within the five dimensions of SERVQUAL. Cronin and Taylor (1994) proposed the SERVPERF model as an improvement to the SERVQUAL model. SERVPERF was a single-dimensional model centered on five gaps based on perceptions. Lim and Tang (2000) suggested a modified model by adding affordability as a sixth factor. The focus was placed on the correlation between patient satisfaction and affordability. Andaleeb (2001) made modifications to the SERVQUAL model by incorporating three additional dimensions, namely communication, discipline, and baksheesh (tips), in place of the original dimensions of tangibles, empathy, and reliability. Ramsuran-Fowder (2005) suggested two additional factors including core medical outcomes and professionalism/competence besides the five generic factors of SERVQUAL model.

A study conducted by Al-Borie and Sheikh Damanhour (2013) evaluated patient satisfaction using a modified SERVQUAL scale. The study also conducted an in-depth analysis of the perceptions of inpatients with respect to hospital services, comparing their expectations with the actual level of service received. The findings indicated that variables such as sex, education, income, and occupation except patients age had a significant impact on inpatients' satisfaction. The study also revealed a significant statistical disparity between patient expectations and the actual level of service provided across all dimensions of the SERVQUAL scale. Kansra and Jha (2016) used

SERVQUAL to evaluate the service quality of hospitals in Jalandhar district of Punjab. However, the research only confirmed four factors out of five generic dimensions. Sharma and Jain (2021) also identified a discrepancy between the anticipated and actual quality of healthcare services in Rajasthan, as evidenced by a negative score indicating that patients were receiving inadequate care from their healthcare providers. The study conducted by Swain and Singh (2021) also revealed a significant disparity in the perceived service quality between insured and uninsured patients in India. The authors emphasised that a great number of functional service quality dimensions play a crucial role in driving patient satisfaction among patients.

The preceding discourse revealed that a significant proportion of research investigations on service quality originated from foreign nations. However, the current study endeavours to address this gap in the literature by assessing the reliability of the five dimensions of SERVQUAL in Indian hospitals. Additionally, the study aims to identify the pertinent dimensions that hold relevance in the Indian context. Moreover, there is a scarcity of scholarly investigations carried out in Punjab that comprehensively cover all three regions. Furthermore, there has been no scholarly inquiry into the degree of satisfaction among cancer patients in Punjab amidst the COVID-19 pandemic, specifically in terms of assessing the alignment between their expectations and actual levels of satisfaction with healthcare service providers. Hence, the present study is aimed at determining the level of patient's satisfaction with their care providers and also examined patient expectations before the start of therapy and actual service delivery with the objective of modifying policy based on patient feedback where feasible.

## Materials and Methods

### *Study setting and Measurement tool*

A total of 202 cancer patients were interviewed and the research employed purposive and convenience random sampling techniques to select the patients for the study. All regions of state of Punjab in India, have been included for information.

The updated questionnaire consisted of two sections: questions regarding hospital type, name; patient demographics, type of cancer, expectations regarding the quality of health care services prior to their admission; and actual service ratings throughout their treatment. The gap between the two values was regarded as a measure of quality. The second section is based on a modified SERVQUAL scale. Statements were reframed both in terms of phrasing and contextual uses. Consequently, adjustments to the SERVQUAL scale were done. Further, the Likert scale was employed in conjunction with closed-ended questions to identify the potential relationships between inpatient satisfaction as the dependent variable and other statements as independent variables. Validity and reliability tests were also conducted on the instrument used in this study. Cronbach Alpha was utilized to measure reliability.

### Data Collection

In the first stage, it was planned to gather data by visiting hospitals, but during the pilot survey, it was found that we will have to visit individuals who had undergone all necessary treatment after a cancer diagnosis. Therefore, two approaches were taken in order to collect data. Firstly, we visited villages in the state of Punjab, where we contacted the village leaders and inquired about recent cancer patients. An appointment was requested from the family, and the village head assisted us in meeting the patients' families. Secondly, a phone call was made to the phone numbers provided by World Cancer Care Organisation, to seek their appointments either in person or over the phone. Hence, 202 families were interviewed out of which, 70 percent of the interviews were held in person, whereas 30 percent of them were telephonic interviews. The data that was gathered proved to be adequate in addressing the objectives of the research.

### Statistical Analysis

IBM SPSS version 19 was used to analyse the data using multiple comparison tests, such as the one-sample t-test, paired t-test, and One-Way ANOVA. Exploratory Factor Analysis was used to identify the factors. All questions were answered on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Descriptive statistics were performed to illustrate respondent's demographic characteristics. Additionally, the study utilised bivariate analysis and multivariate techniques, including t-tests, paired sample t-tests, and one-way ANOVA, to investigate the study's hypothesis and explore any disparities between expectations and actual experiences with healthcare service providers.

## Results

### Patient Satisfaction: Expectation and Realisation (Reliability)

The research utilized a modified version of the SERVQUAL scale (22 original items). Woodside, Frey, and Daly (1989) put forward the argument that in addition to the elements covered by the SERVQUAL scale, there are various other interactions within healthcare facilities that require the focus of hospital administrators to evaluate their impact on patient satisfaction. Therefore, an additional four items were extracted from various sources in the literature (Ware et al., 1983; Marshall & Hays, 1994;

Juhana et al., 2015). During the exploratory factor analysis (EFA), two items got eliminated from the analysis due to their low factor loadings. Cronbach's Alpha value  $r = 0.874$  (realisation) and  $r = 0.861$  (expectations), indicated the scale's acceptable validity and the constructs' strong internal consistency. The 24 statements representing the six dimensions were as follows:

(i) tangibles (4); (ii) reliability (5); (iii) responsiveness (5); (iv) assurance (4); (v) empathy (3); and (vi) financials (3).

The disparity between service quality expectations and actual outcomes was examined for the COVID period. The reliability of the scale was evaluated using Cronbach's Alpha (Table 1). As far as the reliability of all the factors which emerged in the study is concerned, separate Cronbach's Alpha values were obtained for all the factors for expectations and realisations. All the values were found more than 0.7 which indicated that the reliability measure is acceptable for all the components.

The demographic profile of the respondents is displayed in Table 2. The highest proportion of respondents, 46.53 percent, belonged to the Malwa area. The remaining 32.67 percent, 15.84 percent, and 4.95 percent respectively belonged to Doaba, Majha, and capital city of Punjab, Chandigarh. 55.40 percent of respondents were from major cities, whereas 44.60 percent were from rural areas.

The majority of respondents (45.04 percent) were in the age group of 41 and 60, while those aged 81 to 100 constitute a small proportion (1.98 percent) of respondents. The proportion of male and female respondents was 53.5 percent and 46.5 percent, respectively. Regarding their marital status, 8.9 percent of respondents were found to be unmarried, while 87.12 percent were found to be married. Others included divorced, widows, and minor individuals (3.96 percent).

The educational level of respondents' analysis revealed that 7.9 percent of the patients were illiterate, whereas 6.9 percent had not attended formal schooling but could read and write. 13.9 percent of patients had completed primary school, 27.7 percent had completed basic school and secondary school, 22.8 percent had passed the 12th grade, and 11.9 percent were college graduates. 5.9 percent of the population held a postgraduate degree or higher. So, it was found that a majority of the respondents had a low level of education.

The majority of patients (34.7 percent) were housewives, followed by 19.8 percent who were private

Table 1. Reliability Differences between Service Quality Expectations and Realisation – Cronbach's Alpha

Factors	Expectations		Realisation	
	Total items in a factor	Cronbach Alpha	Total items in a factor	Cronbach Alpha
Tangibles	4	0.749	4	0.807
Reliability	5	0.702	5	0.731
Responsiveness	5	0.835	5	0.855
Assurance	4	0.781	4	0.795
Empathy	3	0.851	3	0.865
Financials	3	0.711	3	0.727
Total Statements	24	0.861	24	0.874

Source: Author's Calculations

Table 2. Demographic Profile of Cancer Patients

Type		Frequency	Percentage
Gender	Male	108	53.50
	Female	94	46.50
Region	Majha	32	15.84
	Malwa	94	46.53
	Doaba	66	32.67
	Chandigarh	10	4.95
Type of Locality	Urban	112	55.40
	Rural	90	44.60
Religion	Sikh	130	64.40
	Hindu	66	32.70
	Muslim	6	3.00
Caste	General	128	63.40
	BC/OBC	38	18.80
	SC	36	17.80
Age	0-20	18	8.91
	21-40	35	17.32
	41-60	91	45.04
	61-80	54	26.73
	81-100	4	1.98
Marital Status	Married	176	87.12
	Single	18	8.91
	Others	8	3.96
Education	Illiterate	16	7.90
	No formal education but can read and write	14	6.90
	Up to primary (Class 5)	28	13.90
	Above primary, Up to Secondary (6-10)	56	27.70
	Senior Secondary School (12)	46	22.80
	Graduate	24	11.90
	Post Graduate & Above	12	5.90
	Others	6	3.00
Occupation	Government Employee	10	5.00
	Private Employee	40	19.80
	Skilled Labour	6	3.00
	Unskilled Labour	10	5.00
	Petty Business	10	5.00
	Cultivation (Own Land)	10	5.00
	Retired (Govt. Job)	12	5.90
	Retired (Private Job)	2	1.00
	Housewife	70	34.70
	Unemployed	2	1.00
	Student	12	5.90
	Others	18	8.91

Source: Author's Calculation from Primary Data

sector employees. Government employees, skilled labour, unskilled labour, and small company owners constituted about 5 percent of the population.

#### Results for Demographics

The t-test and One-Way ANOVA were used to compare

means, and their corresponding p-values are listed in Table 3. Where the p-value is more than 0.05, the null hypothesis has been accepted; while the null hypothesis with p-value less than 0.05 was rejected. In our study, when satisfaction was assessed across the gender, no difference was found in the overall satisfaction level. However, during the

Table 3. Result of Hypothesis (Patient Satisfaction & Demographics)

Type		Overall satisfaction			Satisfaction during COVID		
		N	Mean ± SD	p-value	N	Mean ± SD	p-value
Gender	Male	108	2.50 ± 1.209	0.245	95	1.41 ± 1.028	0.000
	Female	94	2.70 ± 1.267		83	1.48 ± 1.103	
Region type	Majha	32	2.33 ± 1.039	0.005	26	1.57 ± 1.105	0.008
	Malwa	94	2.25 ± 1.108		83	1.47 ± 1.014	
	Doaba	66	2.36 ± 0.970		60	1.58 ± 1.113	
Locality	Urban	112	2.82 ± 1.237	0.003	97	1.77 ± 1.175	0.055
	Rural	90	2.31 ± 1.184		81	1.47 ± 1.014	
Religion	Sikh	130	2.65 ± 1.239	0.268	114	1.68 ± 1.117	0.334
	Hindu	66	2.85 ± 1.228		58	1.61 ± 0.998	
	Muslim	6	3.00 ± 1.000		6	1.00 ± 1.732	
Caste	General	128	2.67 ± 1.215	0.102	112	1.56 ± 1.151	0.715
	BC/OBC	38	2.79 ± 1.236		32	1.62 ± 1.498	
	SC	36	2.81 ± 1.192		34	1.67 ± 1.621	
Education	Illiterate	16	2.11 ± 1.309	0.027	9	2.03 ± 0.991	0.039
	No formal education but can read and write	14	2.19 ± 1.025		13	1.86 ± 0.990	
	Up to primary	28	2.36 ± 1.212		26	1.14 ± 0.770	
	6th to 10th	56	2.39 ± 1.166		51	1.43 ± 0.997	
	Senior Secondary School	46	2.61 ± 1.270		43	1.87 ± 1.397	
	Graduate	24	2.58 ± 1.311		23	1.58 ± 1.165	
	Post Graduate & Above	12	3.17 ± 0.816		11	2.00 ± 1.265	
	Others	6	2.33 ± 1.234		2	1.67 ± 0.877	
Work	Government Employee	10	4.00 ± 0.707	0.001	9	2.40 ± 0.894	0.000
	Private Employee	40	2.70 ± 1.218		35	1.70 ± 1.081	
	Skilled Labour	6	1.33 ± 0.577		6	1.00 ± 0.000	
	Unskilled Labour	10	2.40 ± 0.548		9	.40 ± 0.548	
	Petty Business	10	2.00 ± 0.707		10	.80 ± 0.447	
	Cultivation (Own Land)	10	2.20 ± 1.304		9	1.20 ± 0.447	
	Retired (Govt. Job)	12	2.33 ± 1.211		11	1.50 ± 0.837	
	Retired (Private Job)	2	1.50 ± 0.500		1	1.00 ± 0.000	
	Housewife	70	2.71 ± 1.720		63	2.09 ± 1.121	
	Unemployed	2	2.00 ± 0.000		1	1.00 ± 0.000	
	Student	12	2.83 ± 0.703		9	1.83 ± 1.722	
	Others	18	2.44 ± 0.445		15	1.20 ± 0.866	

Source: Author's Calculation

COVID period, it was significantly varying between male and female patients. Further, in three geographical regions of Punjab, namely, Majha, Malwa, and Doaba, significant difference was observed between the two scenarios regarding overall contentment and satisfaction during the pandemic. To test the hypothesis related to place of residence i.e. urban or rural, the study found that the

null hypothesis was not accepted when satisfaction was measured during the covid era. However, in the overall scenario, the null hypothesis was accepted for satisfaction which implies that the level of satisfaction among the rural and the urban patients was not found similar. When comparing the means for religion and caste, no significant difference was found between overall contentment and

Table 4. Comparison of Expectations and Realisations about Health Services (Overall & during COVID period)

Case	N	Paired Differences		
		Mean Diff. (Exp. – Real.)	95% CI	
			Lower	Upper
Exp. & Real. (Overall)	202	1.436	1.244	1.627
Exp. & Real. during Covid period	178	2.267	2.081	2.454

Source: Author's Calculations; Exp, Expectations; Real, Realisation

Table 5. Mean Difference (Gap) in Expectations and Realisations among the Patients, by Hospital Type

Hospital Type	N	Overall Expectations (E)	Overall Realisation (R)	(R-E)	Realisation during COVID (C)	(C-E)	
		Mean $\pm$ SD	Mean $\pm$ SD		N		Mean $\pm$ SD
Public	84	3.85 $\pm$ 0.789	2.41 $\pm$ 1.003	-1.44	72	1.75 $\pm$ 0.931	-2.08
Private	118	3.95 $\pm$ 0.765	2.51 $\pm$ 1.235	-1.44	106	2.02 $\pm$ 0.976	-1.93
Total	202	3.90 $\pm$ 0.779	2.47 $\pm$ 1.110	-1.43	178	1.88 $\pm$ 0.948	-2.02

Source: Author's Calculations; R-E, Mean difference in realisation and expectations from health services (overall); C-E, Mean difference in realisation and expectations from health services during COVID period

satisfaction during the COVID period. In the light of this, it may be inferred that religion and caste have little bearing on a cancer patient's level of satisfaction. Moreover, the study found a substantial difference in the satisfaction levels of patients with varying levels of education. The null hypothesis was rejected and key differences were found on account of overall satisfaction and satisfaction during covid period across different work occupations. It implies that the satisfaction level of patients among different occupations was not the same.

#### Results for Expectations and Realisations

The study also examined the patient's expectations regarding the quality of health care prior to his or her hospitalisation following a cancer diagnosis, as well as the patient's actual service ratings during his or her general hospitalisation and the COVID period. Results have been calculated using paired sample t-test which is shown in Table 4. Pair 1 constituted the mean comparison between expectations prior to availing the services and overall realisation. Pair 2 consisted of a comparison of mean values of expectations before visiting the hospital and actual service delivery (realisation) during the COVID pandemic period. Difference between the expectations and realisations for both the pairs was recorded. The study found significant difference between the expectations and realisations as the p-value for both cases was found to be less than 0.05.

The key differences in mean value between overall realisation and expectations (R-E) and the difference in mean between realisation specifically during the COVID period and expectations of the patients (C-E) for both types of patients i.e. public and private are shown in Table 5. The study found a wide gap between the expectations and realisation. Patients were asked to rate the expectations regarding the treatment on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Similarly, respondents were asked about their actual rating of health care delivery (Realisation) and were also asked to rate the service delivery during the COVID period. However, 24 patients who died before the start of COVID pandemic were not included in the statement measuring the realisation of service during the COVID period. Hence, valid responses to this statement were 178.

The study observed a huge gap in expectations of patients and actual realisation about the healthcare service delivery (mean difference = -1.43). This gap widens when the mean difference was noted for expectations and realisation during the COVID period (-2.02). The gap analysis was also done separately for public and private

hospitals as well which is shown in Table 5.

## Discussion

The present study formulated seven hypotheses about the patients' overall contentment and satisfaction during the COVID time, with respect to demographic profile. The t-test and one-way analysis of variance were employed to examine the differences. Overall satisfaction and contentment over the covid period differed significantly among the three regions of Punjab (Majha, Malwa and the Doaba). Religion and caste had no effect on the level of satisfaction of cancer patients, indicating that religion and caste are irrelevant when suffering from a sickness such as cancer. Furthermore, the study found that the main demographic variables which had significant impact on patient satisfaction were region, education and occupation of patients. The results of the present study are in opposition to the findings reported by Al-Borie and Sheikh Damanhour (2013). The discrepancy in patient satisfaction levels observed between the two studies may be due to variations in geographic location.

In addition, paired sample t-test was also used to study the disparity between patients' pre-treatment expectations and actual service delivery (overall and during the COVID period). The research revealed a noteworthy disparity between the expectations of cancer patients regarding the healthcare provisions and the actual delivery (realisation) of such services and mean difference observed was -1.44. When the difference between expectations and outcomes was observed during the COVID period, the margin widened and mean difference increased to -2.02. This implies that patient satisfaction was low with the service provider and further declined amidst the COVID-19 pandemic. The results of the study were found consistent with the findings of previous studies conducted by Aghamolaei et al. (2014) in Iran, Sharma and Jain (2021), & Swain and Singh (2021), both in India. Using a modified service quality scale, the study also succeeded to identify six factors that might be relevant for evaluating patient satisfaction with their health service provider and also explored the potential significance of "financials" as an additional factor to the five factors of the SERVQUAL scale for assessing patient satisfaction in Punjab.

The study is distinctive in its approach as there is a dearth of research conducted in Punjab that encompasses all three regions. In addition, no researcher has evaluated the satisfaction of cancer patients in the state of Punjab during the COVID era. This research will aid cancer hospitals in formulating policies based on the factors

identified. The present study examined the prospective importance of “financials” as an additional factor to the five factors of the SERVQUAL scale in evaluating patient satisfaction in Punjab. Moreover, the research aims to enhance comprehension of the present condition of patients’ expectations and realisations in relation to service providers.

## Author Contribution Statement

The conceptualization of idea generation and paper design was undertaken by the second author. The initial data collection and composition of the paper were conducted by the first author, under the supervision of the second author. The final manuscript was reviewed and approved by both authors.

## Acknowledgements

### Scientific Body Approval

The research paper is part of doctoral thesis of first author under the supervision of second author, approved by Guru Nanak Dev University, Amritsar, Punjab.

### Ethics Approval

The study received approval from Research Development Council of Guru Nanak Dev University, Amritsar, Punjab.

### Availability of data

The datasets utilized in this study can be obtained by contacting the first author upon a reasonable request.

### Conflict of Interest

There are no potential conflicts (financial, professional, or personal) to disclose by any of the authors.

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