



Analyzing Patient Satisfaction and Service Quality in Punjab's State-Owned Healthcare Sector

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Abstract

This study examines service quality and patient satisfaction in state-owned hospitals in Punjab, India, utilizing the SERVQUAL model to analyze the gap between patient expectations and perceptions. The research employed descriptive research design with a sample of 400 patients from selected districts across Punjab's Majha, Malwa, and Doaba regions. Data was collected through structured questionnaires based on five SERVQUAL dimensions: tangibility, reliability, responsiveness, assurance, and empathy. The findings reveal significant gaps between expected and perceived service quality. While hospitals demonstrated moderate to high levels of responsiveness (3.93) and assurance (3.78), they showed deficiencies in empathy (2.28) and tangibility (2.57). The study found that low fee structure was the primary factor attracting patients to state-owned hospitals, followed by qualified medical staff and emergency services. The research highlights that while state-owned hospitals provide accessible healthcare to economically disadvantaged populations, there are substantial opportunities for improvement in infrastructure, accessibility, and patient record management. This study contributes to the understanding of healthcare service quality in public sector hospitals and provides insights for policy makers to enhance healthcare delivery systems.

Keywords: Service quality, Patient satisfaction, SERVQUAL model, State-owned hospitals, Public sector healthcare

1. Introduction

Health is a fundamental right of human beings, and it must not be overlooked in any case. It is widely believed that State owned sector hospitals are generally considered poor service providers, mismanaged, and politicized units. There is a lack of state-owned trust and confidence in government hospitals in terms of quality services provided at their end due to insufficient infrastructure facilities, lack of responsiveness, low reliability, and absence of empathy, obsolescent equipment, and minimal medicines availability. This leads to overcrowding, and in a result usually moving to a sharp decline in the quality of services.

In a globally competitive world, hospitals that can successfully implement an appropriate business process improvement tend to gain a significant competitive advantage. This leads to questions related to 'what' and 'how' quality initiatives should be implemented to improve the overall service quality and customer satisfaction. Measuring the service quality has become a very important issue for any organization.

Service quality is recognized as a strategic tool to gain operational efficiency and continuous improvement in organizational performance. An organization must know what the quality standards are demanded by their consumers, for that, they have to measure the gaps between what is demanded and what they are serving actually for satisfying their consumers. Service quality and patients' satisfaction are closely related. Service is an attitude formed by a long-term overall evaluation of a hospital's performance. A survey of opinion of patients 'regarding the healthcare service provided by hospitals is one of the main tools to measure the quality of service. Nowadays, patients' satisfaction is an integral part of hospital management across the world.

It has been accepted that the effectiveness of healthcare depends on the patients' satisfaction with the services provided by the hospitals. Supporting this view, many studies have been conducted and concluded that satisfied patients would only follow the advice given by the doctors, follow the information provided by the doctors and would continue using the services provided by the hospitals. The Health and Family Welfare Department is committed to provide preventive, promotive and curative Health Services to the people of the State through a good net-work of medical institutions such as sub-centers, subsidiary health centers (dispensaries/Clinics etc.), primary health centers, community health centers, Sub-Divisional and Distt. Hospitals, Government Medical & Dental Colleges. In Punjab National Accreditation Board For Hospitals & Healthcare Providers (NABH) is a central body which is helpful to regulate the hospitals in Punjab, In state owned hospitals the major contribution is given by Punjab health system corporation this corporation is run under the guidance of department health and family welfare, Govt of Punjab. After this, in these days the new policy of government on state owned health is adopted by Directorate of Health Services, In Punjab- National Health Mission includes national urban health mission and national rural health mission Punjab. Also, Punjab State Aids Control Society is creating awareness under the ministry of health and family welfare department. There is also Punjab health system corporation which provides the various programs/schemes like Jan aushadhi, telemedicine, rogi kalia samiti, Punjab nirogi society and quality assurance program etc.

In healthcare organizations, service quality and patients' satisfaction is getting considerable attentions and this issue is considered in their strategic planning process. Patients' perceptions about the services provided by a particular health care organization also affects the image and profitability of the hospital (Donabedian, 1980; Williams and Calnan, 1991) and it also significantly effects the patient's behavior in terms of their loyalty and word-of-mouth (Andaleeb, 2001). Moreover, increased expectations about the service quality had been realized by the healthcare service providers, to identify the key determinants that are necessary to improve healthcare services that cause patients satisfaction, and it also helps the service providers to reduce time and money involved in handling patient's complaints (Pakdil & Harwood, 2005). Patient perceptions are the major indicator in order to assess the quality of service a healthcare organization (Cronin & Taylor, 1992; O'Connor et al., 1994). It means that customer satisfaction is the major device for critical decision making in selecting health care services (Gilbert et al., 1992) and quality of services delivered to the customers should meet their perceptions (Parasuraman et al., 1985, 1988; Reidenbach & Sandifer-Smallwood, 1990; Babakus & Mangold, 1992; Zeithaml et al., 1993). Technical quality in health care is defined primarily based on the technical accuracy of the diagnosis and procedures. Several techniques for measuring technical quality have been proposed and are currently in use in health-care organizations. Information relating to this is not generally available to the state owned and remains within the purview of health-care professionals and administrators (Bopp, 1990). Functional quality, in contrast, relates to the manner of delivery of health-care services.

Like the other service organizations, the healthcare sector has also become a highly competitive and rapidly growing service industry around the world. The biggest challenge faced by healthcare markets is to define and measure the service quality. However, it was recognized in earlier study that 'SERVQUAL' is a comprehensive scale to empirically estimate the level of quality services delivered to customers, and it is

best suitable in the hospital environment (Babkus & Mangold, 1992). In healthcare, patient perceptions are considered to be the major indicator in order to assess the service quality of a healthcare organization (Cronin & Taylor, 1992; O'Connor et al., 1994). It means that customer satisfaction is the major device for critical decision making in selecting a healthcare services (Gilbert et al., 1992) and quality of services delivered to the customers should meet their perceptions (Parasuraman et al., 1985, 1988; Reidenbach & Sandifer-Smallwood, 1990; Babakus & Mangold, 1992; Zeithaml et al., 1993). Hospitals as organisations (whether for profit or not) are subject to the same processes of sustainability and strategic management partly as objects and victims but also as beneficiaries of sustainable business enterprises. Their position is locked within the national systems to supply the healthy human resources needed for sustainable development (Alasad & Ahmad, 2003).

2. Review of Literature

In healthcare organizations **Abro Zahida, Jalbani Amanat Ali (2012)** the study concludes that patients of Civil Hospital are satisfied but the level of satisfaction does not seem very high. The socio-economic analysis of the patients suggested that, female patients are more satisfied as compared to male patients. However, gender, age and educational status make no difference in terms of overall satisfaction. Majority of the patients approaching Civil Hospital are found uneducated, poor and middle aged. Patients having this background are considered vulnerable part of the society. They require support to fulfill their needs especially medical emergencies, in this connection little help and attention makes them happy and satisfied.

Ahmed Ashfaq Mohammed and Honakeri P.M. (2012) study emphasis on that Government should take precautionary measures regarding capital expenditure incurred on health sector in India, because it has witnessed negative growth rate under capital account on health sector during the year 2000-01 and 2007-08. As per the National Health Accounts 2004-05, public health expenditure accounts for 26.7 per cent of the total health expenditure in India. Apart from that the public health expenditure to the total public expenditure in the country is dwindling from 0.30 to 0.40 percent. Therefore, high priority to the health sector should be provided in the Union Budget in order to increase the share of public expenditure on health.

Chakraborty Ranajit, Majumdar Anirban (2013) in the present economic scenario, the living standard of general people in India has been increasing. With the increase of standard of living, the demand for quality healthcare service is also increasing amongst the general people of India. Therefore, in the present situation all kinds of healthcare units has the first and foremost objective to improve their quality standard to ensure patient satisfaction. For all those healthcare units, it is also important to measure patient satisfaction based on their quality features. SERVQUAL is a well-known instrument to measure customer satisfaction.

Alghamdi Faris S (2013) patient satisfaction was influenced by health service quality, with the empathy dimension as the greatest influence on patient satisfaction. Therefore, it should be considered apriority by government hospitals to train doctors in interpersonal relationship skills to enhance the doctor-patient relationship.

Dave R. Darshan & Dave Reena (2014) in case of health care services still word of mouth i.e. information regarding hospitals and services from family play an important role. It was found that patients had given more preference to doctors' qualifications and experience of doctors. Patients believed that hospitals should be situated in nearby area /location. There was significant influence of education and income of the respondents on patients' loyalty.

Chiou Chuang-chun (2014) in this study, we used SERVQUAL model as a framework of service quality and presented a template for health care leaders to use Lean principles. SERVQUAL model offers the organization to assess the state of its implementation in their organizations. The care receivers benefit come

from a joint focus on improving the work life for care service providers and nursing home staff, improving processes to prevent systematic errors, reducing stress levels, and reducing waste so that staffs can spend more time on and focus more on patient care.

Mihaltan Corina Delia, Vitan Daniela & Cucui Gabriel (2014) study proposes to see how the financial effectiveness and performance of non-profit motive organizations can be analyzed based on the data provided by their financial statements. Within the Income Statement have to include the income and expenses realized as well as those estimated, so this is the source of information needed. The financial effectiveness and performance is calculated, using the ratios method, by reporting the realized elements to the targeted ones. The period of our analysis involves three fiscal years for the chosen sample. The results involve measures of financial effectiveness and performance for each entity studied, the effectiveness evolution over the studied period, identifying factors which influence both effectiveness and its evolution, and interpreting the results for the whole field.

Ibarra Luis E. et al. (2014) Improvement in quality perception through the development in efficiency and effectiveness when providing the service by reducing the time the patient has to wait to be attended, enhancing the attention order system according to patient's condition, improving the pharmacy service and the manner patients and relatives are treated by service personnel, providing assurance, responsibility and empathy, and showing a real concern about the welfare of patients in the emergency care unit.

Gang Nathan Dong (2015) It suggests that, when a hospital made more profit, had the capacity to finance investment using debt, paid higher wages presumably to attract more skilled nurses, its quality of care would generally improve. While the pursuit of profit induces hospitals to enhance both quantity and quality of services they offer, the lack of financial strength may result in a lower standard of health care services, implying the importance of monitoring the quality of care among those hospitals with poor financial health.

Manh Dung Tran & Thi Sen Vu (2018) The study is conducted to investigate the impact levels of determinants on financial performance of public hospitals in the Northwest of Vietnam in the discipline of management accounting. Data are collected from 43 public hospitals in the Northwest of Vietnam. Regression analysis is employed for determining the impact levels of factors on financial performance of public hospitals in Vietnam. The results show that the impact levels of determinants on financial performance decrease from the factors of efficiency of revenue and expenses, efficiency of staff working, mission role, quality standard, satisfaction of service quality, quality of treatment, service supply, strategic planning, financial management efficiency, mission achievement, activity strategy planning, customer's expectations, ratio of doctor per patient.

Brown, K., & Johnson, R. (2020) this comparative analysis examines the financial sustainability of public sector hospitals in different regions. It explores factors influencing their financial performance, such as government funding, patient revenue, and cost containment strategies.

Błaszczyk et al. (2021) In financial performance of state-owned hospitals a cross-sectional study examined the financial performance of state-owned hospitals in Poland in 2018. The researchers found that most hospitals (52%) generated a gross loss, while 40% had overdue liabilities. The study also found that the financial performance of hospitals varied depending on their organizational form and ownership.

Kumar, A., & Singh, R. (2021). This meta-analysis examines studies that assess productivity and efficiency in public sector hospitals. It explores different measurement techniques, such as total factor productivity and non-parametric methods, and identifies determinants of hospital efficiency.

Research Gap Analysis

Review of literature revealed the fact that this is an area where a large number of studies had been conducted and even in the present scenario, lots of works test this area. It is currently undergoing quality and customer satisfaction is their specialty because of the dynamic nature of the sector and technological advancement. The reviewed literature includes studies in the expected service quality and customer satisfaction, its nature and measurement. Both Indian and foreign based studies were considered for the review.

Indian based studies reviewed were largely carried out in the aspects like service quality, customer satisfaction, product development, distribution, technology adoption, internal marketing etc. Studies conducted from time to time in different parts of India have indicated that the customers are interested primarily in promptness, accuracy, completeness and speed in delivery of service by state owned hospitals. The present study is in a different dimension - a study with an objective to measure the quality of services provided by civil hospitals operating in Punjab.

The hypothesis is made that such a research gap can be filled up by the present study. Hence the present study views the service quality of civil hospitals: one from patient's point of view and another one from employees' point of view. This study also focuses on SERVQUAL measurement on various dimensions of service quality in civil hospitals.

Need of the Study

The healthcare sector of Punjab needs special attentions from the government, as a quality of healthcare provides hope and relief to the patients and their dependents. Growing demand for the state-owned healthcare and the absence of the matching delivery mechanisms pose great challenges. Some of the major issues of concern in the health sector which may be low state owned health, vanishing state owned sector, factors that limit the ability. Healthcare is a rapidly growing sector which has gained much attention from researchers and practitioners worldwide.

There is a limited study in state owned healthcare sector. Thus the relationships among service quality and consumer satisfaction and the determination of behavioral intentions in the healthcare become the primary objective of the research. The present study is required to evaluate the perceived level and expected level of the patients regarding the service rendered by the state-owned Hospital. The purpose of the current research is to address these concerns by focusing and building upon the concept of service value through an empirical investigation.

Objectives of the Study

1. To find out the service quality gap between patient's expectations and patient's perceptions of the service delivered in the state-owned hospitals.
2. To find out the reasons for patients being attracted to specific hospital.

Hypothesis

Ho(a): the gap between perceived and expected service was the same for both male and female patients.

Ho(b): the gap between perceived and expected service was the same between both rural and urban patients

3. Research Methodology

Methodology of research is always crucial for any study, as it shapes and directs the work. Further it reflects the quality, credibility, consistency, objectivity, comprehensiveness and universality of the research work. The study is based on primary and secondary data collected from various sources. This section comprises four sub sections: Research Design, Population and Sample, Tools and Techniques, Procedure of Data Collection. Every possible attempt has been made to make this study logical, universal and useful by adopting the comprehensive research methodology.

3.1. Research Design: The study being undertaken is Descriptive in nature. Descriptive research attempts to describe in detail the relationship between various aspects of a research problem. Instead of looking at 'what was', it looks at 'what'. The major purpose of this research design is to describe the state of affairs as it exists at present. While studying the research problem, a scientific methodology will be followed.

Descriptive research design has been selected because it can be clearly defined whatever measured and can find methods for measuring it along with a clear-cut definition of 'population' for study in this research design. Since the main aim is to obtain complete and accurate information, the procedure to be used will be carefully planned. This research design is made enough provision for protection against bias and maximize reliability.

3.2. Population and Sample:

- **Population:** All items in any field of enquiry constitute a 'Population'. The population for the study is patients & doctors of state-owned hospitals of the Punjab state.
- Sampling is the most important part of the research work. It may be defined as the selection of some part of an aggregate or totality based on which a judgment or inference about the aggregate or totality is made. In simple words, it is the process of obtaining information about the population by examining only a part of it.
- **Sampling Unit:** In this study, the sampling unit was the patients and doctors of divisional state-owned hospitals (civil hospitals). Also, it depends on the level of doctors.
- **Sample Size:** The sample size was so selected that it could be adequate enough to represent the whole population and also give the true picture. The total sample size is restricted to 400 patients and 100 doctors of state-owned hospitals.

The finite subset of individuals from a total population is called a sample and the number of respondents selected for a sample is called sample size. As per the formula, developed by Cochran (1977), the sample size for infinite population will be 384 (As per the formula $n_0 = z^2 pq / e^2$, with 95% desired confidence level and 5% margin of error. p is the approximate proportion of an attribute that is present in the population, and q is $1-p$. The value for Z is found in statistical tables which contain the area under the normal curve.). However, in the present study a total of 500 (400+100) respondents were taken as sample.

- **Sampling Design:** This refers to the procedure by which the respondents should be chosen. In this case, keeping in Mind the nature of data required for the study stratified sampling will be used. As far as Capital Receipts are concerned, Grants and Donations received from World Health Organisation, Government of India and Government of Punjab is taken into consideration. And Infrastructure Improvement, Strength of OPDs, Beds & Services provided in state-owned hospitals shall be covered under Capital Expenditure.

3.3. Scope of the study: This study was restricted to selected districts of Majha, Malwa and Doaba region of Punjab (25% districts of each region was selected and those selected districts of each region are the most populated districts of that particular region as per the census of India, 2011).

3.4. Tools and Techniques: SERVQUAL model used for assessing the quality in state owned hospitals and the Questionnaire covered the five dimensions of service quality i.e. Tangibility, Reliability, Responsiveness, Assurance, Empathy. The questionnaire was in accordance to the objectives, giving importance to the quality of state-owned and hospitals. The questionnaire was in two sections. The first section has statements regarding the expectations of the patients, i.e. what they expect from the hospitals and the second section has statements regarding the perceptions (experiences) with their hospitals. The five-point scale used with points of 5, 4, 3, 2, 1 assigned strongly agree to strongly disagree. In this study there are a lot of statistical tools and techniques used according to the requirement of the study.

3.5. Data Collection Methods: The method of data collection was used for the researcher who should keep in mind two types of data VIZ. primary and secondary. In this study, there are used primary data collected through questionnaires. Also, there was information available on web-portals and from other sources of published work.

3.6. Questionnaire Method: Data originally collected for an investigation are known as primary data. Such data is original in character. The questionnaire method is the most important and popular method. The primary data collected for this research study was collected through the questionnaire method. While preparing the questionnaires special care was taken while drafting the questions which were arranged logically, and ambiguity was avoided.

4. Analysis and interpretation

The study included 400 patients and 100 doctors. Table 1 exhibits the demographic profile of the patients. Around 60% of the patients were male and 40% female. Age wise, most of the patients of government hospitals were above the age of 60 (n=223, 55.8%), followed by the age group of 40 to 60 years (n=91, 22.8%). Also, there were 14% of respondents in the age group of 20 to 40 years and 8% were below the age of 20 years. Majority of the respondents visiting government hospitals were from rural areas (n=328, 82%). Almost equal proportion of patients were visiting border areas (n=188, 47%) and non-border areas (n=212, 53%). Education wise, 19% of the respondents were illiterate, around 39% were educated up to 10th, around 11% were educated above 10th but upto 12th, around 17% were up to graduation level or equivalent, and 15% were post-graduated. It can be observed from the profile of the respondents, respondents with all age groups and education backgrounds visiting government hospitals.

Table 1: Demographic Profiles of Patients

Variable	Category	Frequency	Percentage
Gender	Male	162	40.5%
	Female	238	59.5%
Age	Below 20 yrs.	32	8.0%
	20 to 40 yrs.	54	13.5%
	40 to 60 yrs.	91	22.8%
	Above 60 yrs.	223	55.8%
Residence	Urban	72	18.0%
	Rural	328	82.0%
Area	Border Area	188	47.0%
	Non-Border Area	212	53.0%
Education	Illiterate	76	19.0%
	Upto 10 th	154	38.5%
	Above 10 th but upto 12 or equivalent	43	10.8%
	Upto graduation or equivalent	66	16.5%
	Post-graduation or equivalent	61	15.3%

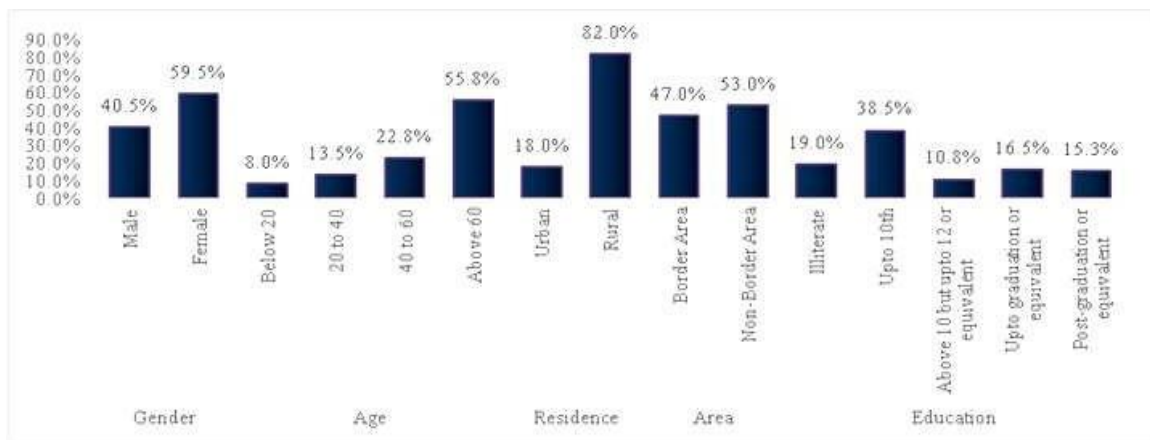
**Figure 1:** Demographic profile of patients

Figure 1 presents the demographic profile of the patients in the form of bar chart. The labels are percentage of respondents from each category. **To find out the gap between patient's expectations and patient's perceptions of the service delivered in the public hospitals.**

The first objective of the study was to find the gap between the expectations and perception of the patient towards the services being provided in the public or government hospitals. As proposed by Parasuraman, Zeithaml, and Berry (1986, 1988) in the development of SERVQUAL model, the Perceived service quality is viewed as the degree and direction of discrepancy between consumers' perceptions and expectations.

To achieve the objective, a scale was developed to measure the perceptions and expectation of respondents (patients and doctors) towards public or government hospitals. The scale was purely based on the original scale of service quality perception and expectation [SERVQUAL (Parasuraman, Zeithaml, and Berry 1986, 1988)]. The original scale is a 22 items scale measuring the perception and expectations of customers towards the service provider. The items of the scale were marginally amended to measure the responses of patients and doctors whereas the original scale was general in nature. In the original scale, the five dimensions of the scale were proposed and validated. In this study also, those five dimensions were

expected as these are quite relevant in hospital and healthcare industry also. Therefore, five dimensions were theorized, and a five-factor model was developed and validated.

4.1. Perception of Respondents towards Government Hospitals

As discussed earlier, five factors, as proposed by Parasuraman, Zeithaml, and Berry (1988), are the basis of measuring the perception of respondents toward the service quality provided by the government hospitals. A 22 items instrument was used, and respondents were asked to rate their feelings about government hospitals. The items were measured on a five-point likert scale from strongly disagree (=1) to strongly agree (=5). Figure 2 exhibits a 5 factors measurement model of perception of respondents towards government hospitals. A measurement model presents the relationship between a factor and its indicator variables. The respondents include patients (n=400) and doctors (n=100). Confirmatory factor analysis (CFA) has been used to validate the model. The confirmatory approach is restricted in nature as it does not allow an indicator to load on to the other factor. The results of CFA are discussed below in length.

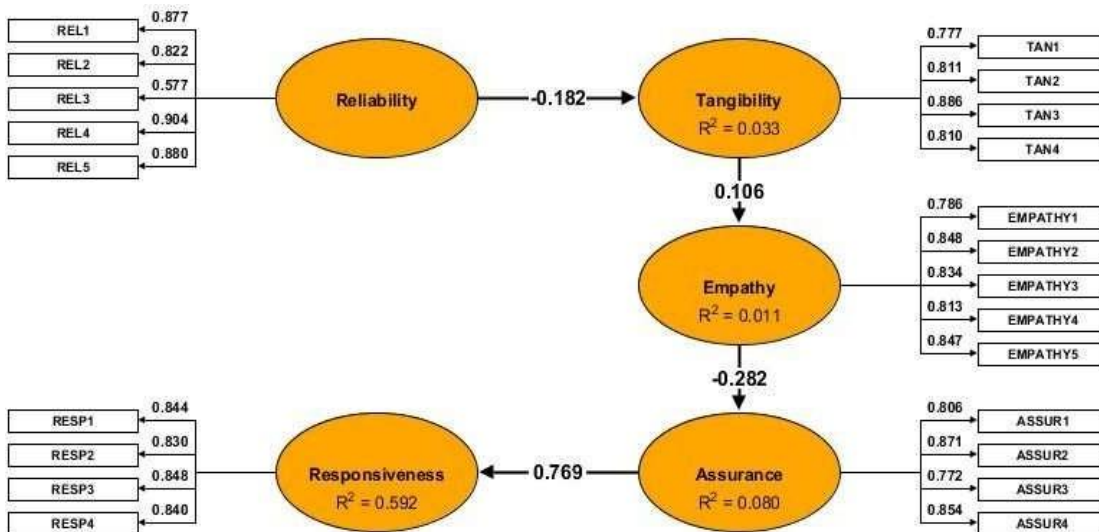


Figure 2: Measurement model measuring the perception of respondents towards government hospitals

4.2. Expectation of Respondents towards Government Hospitals

Expectations mean the feeling of the respondents about what the service firms should offer. Here the expectations measure the extent to which the government hospitals services should possess the features described by each statement. As discussed above, an instrument containing 22 items was developed which is actually an amended version of original instrument. The items of the instrument measured what the respondents want government hospitals should be offering. The items were measured on five-point likert scale from strongly disagree (=1) to strongly agree (=5). The underlying five dimensions were same as proposed by the authors of the scale [SERVQUAL (Parasuraman, Zeithaml, and Berry 1986, 1988)].

Figure 3 exhibits the five-factor model of service expectations of government hospitals. The respondents were patients (n=400) and doctors (n=100). The model is confirmatory in nature as the pre-specified items were allowed to correlate with their specific factor only and no cross loadings were allowed. The results of the CFA are exhibited below.

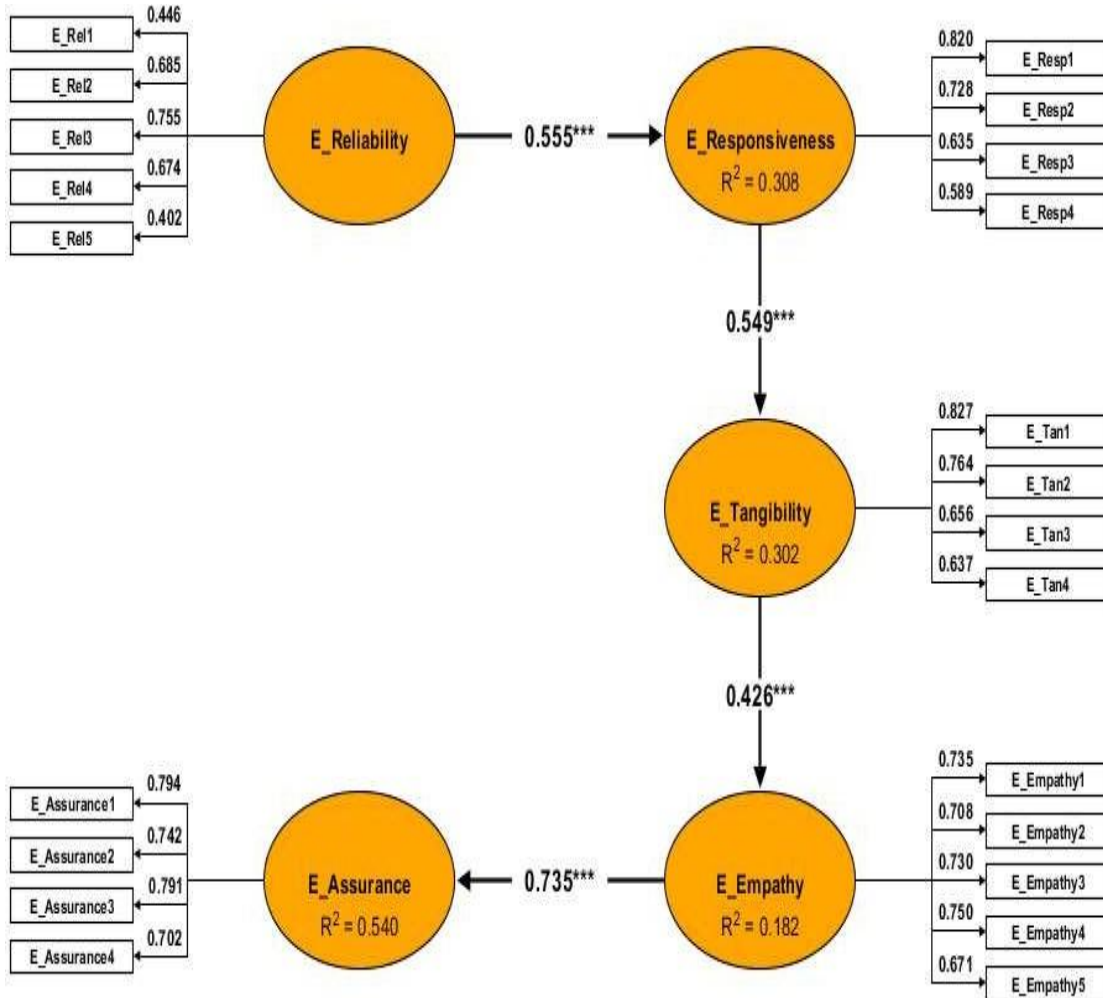


Figure 3: Measurement model measuring the expectations of the respondents towards government hospitals

The significance of differences in the perceived and expected services of public hospitals for patients was examined using paired sample t-test. To compare the mean differences in the perceived service and expected services of public hospitals would testify if the patients had different expectations and perception towards the services of public hospitals. The results are exhibited in Table 2.

The gap in tangibility was highly significant as $t = -18.86$, $p < .01$ was found to be highly significant. The expectations of patients from public hospitals' physical infrastructure were far higher than what actually they experienced or perceived. Regarding reliability, the gap was highly significant as $t = -5.94$, $P < .01$, suggesting that the expected reliability was much higher compared to what experienced. In the case of responsiveness, the perceived responsiveness was much higher than the expected responsiveness as the gap was found to be highly significant ($t = 7.51$, $p < .01$).

The same results were observed in assurance dimension of service quality as perceived assurance surpassed the expected assurance and the gap was highly significant ($t = 6.69$, $p < .01$). The expected empathy was significantly higher than the perceived empathy as

$t = -18.43$, $p < .01$ was highly significant.

Out of five service dimensions, on three service dimensions the expectations were higher than what

actually patients experienced. On two of the service dimensions, the expectations were met. In snapshot, the overall quality of services expected was much higher than that actually is being delivered to patients ($t = -9.92$, $p < .01$) (refer table 2).

Table 2: Significance of differences in perceived and expected services

Dimension of service quality	Mean	Gap (P-E)	S.D. (Gap)	S. E. (Gap)	T-stat <i>df</i> = 399
Average Perceived Tangibility	2.57	-0.847	0.948	0.047	-17.86**
Average Expected Tangibility	3.42				
Average Perceived Reliability	3.02	-0.339	1.142	0.057	-5.94**
Average Expected Reliability	3.36				
Average Perceived Responsiveness	3.93	0.365	0.971	0.049	7.51**
Average Expected Responsiveness	3.57				
Average Perceived Assurance	3.78	0.372	1.113	0.056	6.69**
Average Expected Assurance	3.41				
Average Perceived Empathy	2.28	-1.047	1.136	0.057	-18.43**
Average Expected Empathy	3.32				
Average overall Perceived	3.07	-0.335	0.675	0.034	-9.92**
Average overall Expected	3.41				

** = significant at 1% level, * = significant at 5% level.

4.3. Analysis in gap with respect to the demographic profile of the patients

In the following section, the variation in the gap between perceived service and expected service of government hospitals, with respect to demographic profile of the patients has been analyzed. The overall gap and the gap in each dimension are the dependent variables and the demographic profile has been used as the factor variable. But before the analysis, the normality of the data was examined. The normality of the overall over all gap scores of the respondents and gap scores of each dimension of gap was examined using Shapiro-Wilk and Kolmogorov-Smirnov test.

Along with these statistical tests, the normality plots were also examined. Out of five dimensions, tangibility and empathy exhibited slight deviation from normality. The normality plots exhibited that few extreme values were responsible for the little skewness of the data. But there was no severe deviation from the assumption of normality. Overall, there was no severe departure from the assumption of normality. Also, the homogeneity of variance of the data was examined using Levene's test. Overall data as well as the five dimensions of the service quality easily complied with the test and the assumption of homoscedasticity was intact. The gap in the perceived service and expected service, which is termed as the service quality is expected to. vary with respect to the gender of the patients. The following hypothesis was formulated.

$H_0(a)$: the gap in perceived service and expected service was same among male and female patients.

$H_1(a)$: the gap in perceived service and expected service was not same among male and female patients.

Table 3 exhibits the results of two independent samples t-test, comparing the mean gap between male and female patients for each dimension of the service quality as well as overall service quality. As exhibited in the table 3, there was no significant difference in the mean gap between male and female patients as all of the t-tests were insignificant ($p > .05$). The value of t-statistics for all of the dimensions as well as the overall gap was less than 1.96, suggesting that the means were not significantly different at 5% level of significance.

The service quality is also expected to vary with respect to the residential background of the patients. Patients from rural and urban areas may expect and perceive the services of public hospitals differently. The following hypothesis was formulated.

Ho(b): the gap in perceived service and expected service was same among rural and urban patients.

H1(b): the gap in perceived service and expected service was not same among rural and urban patients.

Table 3: Results of t-test with respect to gender of the patients

Dimension	Gender	N	Mean	Std. Deviation	t-stat (df = 398)
Gap_Overall	Male	162	-0.29	0.72	1.20
	Female	238	-0.37	0.64	
Gap_Tangibility	Male	162	-0.94	0.92	-1.57
	Female	238	-0.79	0.97	
Gap_Reliability	Male	162	-0.30	1.11	0.49
	Female	238	-0.36	1.16	
Gap_Responsiveness	Male	162	0.46	0.98	1.66
	Female	238	0.30	0.96	
Gap_Assurance	Male	162	0.47	1.11	1.48
	Female	238	0.30	1.12	
Gap_Empathy	Male	162	-0.95	1.15	1.40
	Female	238	-1.11	1.12	

*** = significant at 1% level, * = significant at 5% level.*

Table 4 exhibits the results of two independent samples t-test, comparing the mean gap between the patients from rural and urban areas for each dimension of the service quality as well as overall service separately.

As exhibited in table 4, there was significant difference in the overall gap in service between rural and urban patients as the t-tests was significant ($t = 2.13$, $p < .05$). Also, the gap was highly significant in responsiveness ($t = 2.75$, $p < .01$). The mean gap of responsiveness of urban patients (0.65, SD = 0.91) was significantly higher than the mean gap of rural patients (0.30, SD = 0.97).

Table 4: Results of t-test with respect to residential background of the patients

Dimension	Residence	N	Mean	Std. Deviation	t-stat (df=398)
GAP_Overall	Urban	72	-0.18	0.79	2.13*
	Rural	328	-0.37	0.64	
GAP_Tangibility	Urban	72	-0.78	1.02	0.70
	Rural	328	-0.86	0.93	
GAP_Reliability	Urban	72	-0.31	1.20	0.24
	Rural	328	-0.35	1.13	
GAP_Responsiveness	Urban	72	0.65	0.91	2.75**
	Rural	328	0.30	0.97	
GAP_Assurance	Urban	72	0.58	1.15	1.78
	Rural	328	0.33	1.10	
GAP_Empathy	Urban	72	-0.85	1.25	1.59
	Rural	328	-1.09	1.11	

** = significant at 1% level, * = significant at 5% level.

4.3. To find out the reasons for patients being attracted to specific hospital

The patients were asked how long they had been availing the services of the public hospitals. As shown in table25, majority of patients have been visiting the public hospitals for more than 6 years (n=72, 18%). Another significant proportion had been availing of the services of public hospitals for between 4 to 6 years. 7% of the patients had been visiting the public hospitals between 2 to 4 years. 11% of the patients started to visit government hospitals for less than 2 years.

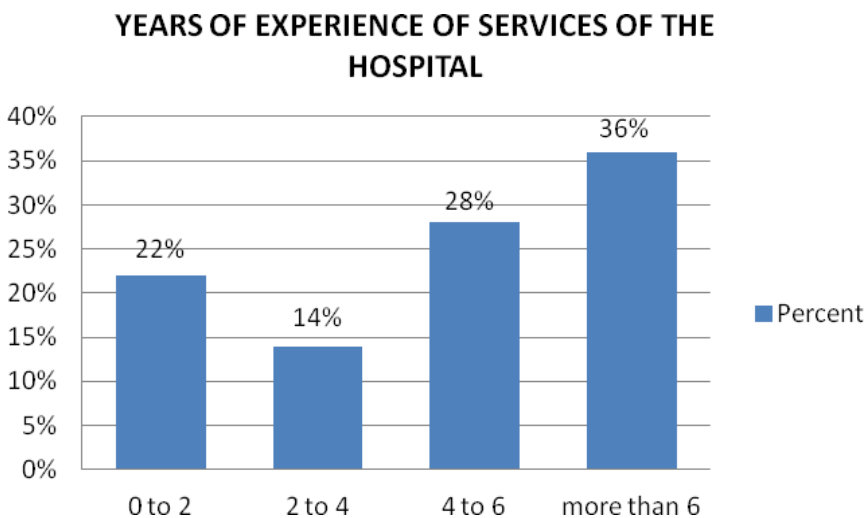
**Figure 4:** The association of patients with the public hospitals

Figure 4 exhibits the length of the bar represents the association of patients with the public hospitals. Longer the bar, older the association with the hospital.

The patients were asked the reason for the association with the public hospitals. A list of prime reasons of association with the public hospitals was prepared. Primarily six reasons were identified. A list of six

reasons was offered to the patients and asked them to rank these reasons from most important (=1) to least important (=6) for their association with public hospitals. Garrett ranking method was used to find the true mean. The results of Garrett ranking method are exhibited in Table 5.

Table 5: Garrett ranking of reasons for associating with the public hospitals

Reason	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Grand Total	Total	Average	True rank
Good track record	8	18	64	46	52	212	14122	400	35.305	6
Accessibility	9	14	49	88	172	68	16197	400	40.4925	5
Infrastructure	22	59	47	104	82	86	17745	400	44.3625	4
Low fee structure	166	126	53	32	21	2	25877	400	64.6925	1
Good team of doctors	139	121	63	41	17	19	24680	400	61.7	2
Emergency services	56	62	124	89	56	13	21379	400	53.4475	3
Percentile Position	8.33	25.00	41.67	58.33	75.00	91.67				
Garret Score	77	63	54	46	37	23				

As shown in Table 5, the low fee structure was the most important reason for association with the public hospitals. Public or government hospitals charge a very nominal fee from a common patient visitor. But for BPL card holders or blue card holders, the treatment is completely free. Therefore, the public hospital is the first choice of the poor segment of society.

The second most important reason for association with the public hospitals is the good team of doctors. The doctors in the public hospitals are not greedy of money as they are paid salaries by the government, and they are aware that the people visiting public hospitals are generally poor and have low paying capacity. Also, the public hospitals have generally doctors capable of handling the most common illnesses.

The third most important reason for association with the public hospitals is the emergency services in the public hospitals. Most of the public hospitals have an emergency ward to take care of critical patients.

The fourth most important reason for association with the public hospitals is the infrastructure of the public hospitals. The public hospitals are generally not known for excellent infrastructure and facilities like private or corporate hospitals but still have sufficient infrastructure to take care of their patients.

The two least important reasons are the accessibility and good track record of public hospitals. The public hospitals are not easily accessible to people from rural and border areas. They must travel miles to reach hospitals. Also, the public hospitals are generally overcrowded and therefore are not able to take care of all patients.

From the above discussion, it may be concluded that the public hospitals offer affordable services, and their doctors are fit to handle the common illness and emergency services are also good. Whereas the accessibility and track record are the problem areas.

5. Findings and Conclusion

- The study found that on an average, services were utilized more by females as compared to males in the sampled hospitals. The higher share of female patients may be due to the reason that females are more prone to sickness as compared to male members.
- The distribution of respondents on a rural-urban basis reveals that as most of the CHCs were in rural areas therefore, 88.50 per cent of the respondents belong to rural areas followed by 70.20 per cent in SDHs and 58.30 per cent in District Hospitals. So, it implies that the rural people avail of a higher share of services provided by the PHSC.
- The rating of patients in regard to the behavior of service providers reveals that 85 per cent of the patients rated the behavior of doctors as good while 78 per cent of the patients rated the behavior of nurses as good and 75 per cent of the patients rated the behavior of the supporting staff as good. On the other hand, the awareness of the patients in regard to the availability of information about rules and regulations, about diseases and treatment and about lab tests was found very low in regard to all types of hospitals.
- Among the five dimensions of service quality, the patients expected medium level services from the state-owned hospitals as the average scores of patients' expectations on the five dimensions of service quality ranged between 3.32 for empathy to 3.57 for responsiveness.
- Perceived service level of district hospital from the Punjab Government in the form of five dimensions of service quality are mentioned here. The Patients perceived that the state-owned hospitals exhibited a moderate to high level of responsiveness (3.93, SD=0.72) and assurance (3.78, SD= 0.79). But the state-owned hospitals exhibited low level of empathy (2.28, SD=0.86) and poor tangibility (2.57, SD=0.69). The perceived reliability is also low i.e. (3.02, SD=0.98).
- Descriptive statistics of Gap in Service Quality
 - a) The average gap in tangibility was (-) 0.85 (SD = 0.95) & the observations ranged between (-12.75 & 2.25) which suggested that there were observations where the gap was positive also.
 - b) The average gap in reliability was (-) 0.34 (SD= 1.14) and the observations ranged between (-13.60 & 3.00) suggested that the gap was positive also.
 - c) The average gap in responsiveness was positive (0.36, SD=0.97) which suggest that perceived services were more as compared to expected services.
 - d) The average gap in assurance was 0.37 (SD= 1.11), which was also positive.
 - e) The average gap in empathy was highest (-) 1.05 (SD=1.14) and the observations ranged between (-) 3.80 and 2.40 suggesting that there were observations where the gap was positive also).
- As it is found the positive reasons for the association with the Public Hospital as per below:
 - The first & foremost reason for association with the Public hospital was low fee structure. These hospitals charge less fees from patients or sometimes the fee is free for poor sections.
 - The second found an educated & experienced doctors' team in hospital. They give proper time to patients to understand their problems deeply with their deep knowledge of their specialized area of medicine line.
 - The third reason was emergency services; majority of the district hospitals have an emergency ward to take care of critical patients & have ambulance services which provide 24 hours emergency help to the

patients.

- The fourth one was infrastructure usually; the public hospitals have not excellent infrastructure but have still sufficient infrastructure to take care of their patients.
- Lastly, two least important reasons was accessibility and good track record of public hospitals. People travel miles to reach do hospital from their districts concerned. Also, no proper record was maintained in public hospitals online or offline. Hospitals faced many difficulties while dealing with patients because illness record was not properly maintained.

Conclusion

The comprehensive analysis of service quality in Punjab's state-owned hospitals reveals both strengths and areas requiring improvement in the healthcare delivery system. The study's findings indicate that these hospitals serve as crucial healthcare providers, particularly for economically disadvantaged populations, with their low-cost services being the primary attraction for patients.

The SERVQUAL analysis revealed mixed results across different service dimensions. While hospitals demonstrated commendable performance in responsiveness and assurance, significant gaps were identified in tangibility, reliability, and particularly in empathy, which showed the highest negative gap (-1.05). This suggests that while basic medical services are being delivered, the physical infrastructure and emotional support aspects of healthcare require substantial improvement.

Demographic analysis revealed interesting patterns, with female patients forming a larger proportion of service users, particularly in rural areas. The study found no significant gender-based differences in service quality perception, but notable variations existed between rural and urban patients, especially in their perception of responsiveness.

The research identified five key factors influencing patient choice of state-owned hospitals, in order of importance: affordable fee structure, qualified medical staff, emergency services, basic infrastructure, and accessibility. However, the lower ranking of accessibility and track record management indicates critical areas requiring attention from policy makers.

Several key recommendations emerge from this study:

- Enhanced focus on improving hospital infrastructure and physical facilities
- Development of better patient record management systems
- Implementation of training programs to improve staff empathy and patient interaction
- Improved accessibility, particularly for rural and border area residents
- Strengthening emergency healthcare services

These findings provide valuable insights for healthcare administrators and policy makers to enhance the quality of healthcare services in state-owned hospitals. Future research should focus on developing specific intervention strategies to address the identified service gaps and monitoring their effectiveness in improving overall healthcare delivery.

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