Project Dissertation

On

"Patient's Perception of Service Quality in Private Hospitals of Gurgaon"

Submitted By:

Manav Gera

2K17/MBA/043

DSM, DTU

Under the guidance of:
Dr. Rajan Yadav

DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road, Delhi 110042

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CERTIFICATE FROM THE INSTITUTE

This is to certify that the Project dissertation titled 'Patient's Perception of Service Quality in Private Hospitals of Gurgaon', is a bona fide work carried out by Mr. Manav Gera, of MBA 2017-19 and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfilment of the requirement for the award of the Degree of Masters of Business Administration.

Signature of Guide   Signature of Head (DSM)

(Dr. Rajan Yadav)   (Seal of Head)

Place:

Date:

DECLARATION

I, Manav Gera, student of MBA 2017-19, of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42, declare that the project report on 'Patient's Perception of Service Quality in Private Hospitals of Gurgaon', submitted in partial fulfilment of Degree of Masters of Business Administration, is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship.

Manav Gera

Place:

Date:

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2K17/MBA/043

Executive Summary

Purpose – Service quality refers to the methodology of obtaining a difference between expected service and a perceived service of any service offering. In today's globalized and connected world, services have started dominating over products in almost all fields. Providing service quality, is therefore given for any service industry. Healthcare industry offers large amount of services, many of which are of critical nature and require expertise of service provider.

Design/methodology/approach – In this study, the gap between expected services and perceived services of 11 private hospitals across Gurugram, Haryana region is explored. The report first reviews and discusses various research initiatives being undertaken in the field of service quality of hospitals in India and abroad. Then a modified scale is prepared keeping Parsuraman's SERVQUAL scale as reference. This modified scale includes economic aspects of affordability into the original SERVQUAL scale considering the fact that most of the population in Gurugram is migrant population who are living here primarily due to profession. The scale's structural validity is tested conducting a Principal Component Analysis (PCA) and reliability is established. Further, the developed questionnaire is administered to patients who are 18 years old and above who have stayed in hospital for at least 2 days and are having capacity on independent judgment. Comparison between expectations and perceptions of private hospitals will be made using mean values using SPSS software and validated using Pair-Sample t-tests.

Findings – The Millennium city of Gurgaon, considered home to large number of reputed private hospitals fell short of meeting the customer's satisfaction in terms of their service quality. While perceived service quality was less than expected service quality for all dimensions of MODIFIED SERVQUAL Scale, affordability and empathy dimensions were the two where maximum difference lied. With patients being unsatisfied regarding the expenses incurred during their treatment as well as lack of

empathy observed in medical staff led to serious dissatisfaction that requires a review from both private hospitals as well as government. While dissatisfaction in service quality affects the trust of patients in hospitals and their brand, it compels government to churn out regulations to control quality of healthcare.

Limitations/Implications – This research is conducted in a limited geographic area of Gurugram, Haryana, i.e. it is a cross-sectional study whereas for sake of completeness a longitudinal study must be conducted. For our convenience, the questionnaire included questions of both expectation and perception. In future, the expectation and perception sections should be separated, although this may create difficulties contacting respondents just before their treatment and just before they are discharged from hospital.

Keywords – Patient service quality, SERVQUAL, Healthcare industry, Private Hospitals, SPSS, Gurugram

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Abbreviations

SPSS	Statistical Packages for the Social Sciences
VAR	Variable
PCA	Principle Component Analysis
KMO	Kaiser-Meyer-Olkin
SOM	Service Operations in Management

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CHAPTER 1: INTRODUCTION

1.1   Background

In terms of revenue and employment, healthcare has become one among India's largest sectors. Health care includes hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical commercial enterprise, insurance and medical instrumentation. The Indian health care sector is growing at a brisk pace because of its strengthening coverage, services and increasing expenditure by public also private players.

Indian health care delivery system is classified into 2 major elements - public and private. The government, i.e. public health care system includes limited secondary and tertiary care establishments in key cities and focuses on providing basic health care facilities within the sort of primary health care centres (PHCs) in rural areas. The private sector provides majority of small and a few large establishments with a serious concentration in metros, Tier I and Tier II cities.

Market Size

The health care market will increase 3-fold to USD 133.44 billion by 2022. India is experiencing 22-25% growth in medical commercial enterprise and therefore the business is predicted to double its size from (April 2017) US$ three billion to US$ six billion by 2018.

Investment

The hospital and diagnostic centres attracted Foreign Direct Investment (FDI) value US$ 25 billion between Apr 2000 and June 2018

Trends in health care business 2019

Moving forward, single specialty hospital and clinics are growing steadily in India and this is about to bring about a change in underpenetrated health care sector. Initially, health care sectors like eye care, dental care were widespread within the business. However, with the success of the 'Bouquet hospital' model currently, different sectors like fertility, medicine and maternity are creating their niche into this sector. Rising start-ups and huge players are betting massively on the national health care to get profit during this growing boom.

Another trend of 'Budget Hospitals' that has already become common within the demographics of South India is that, it can headline the health care sector in 2019. With the growing demand for good medical facilities at reasonable costs, 'Budget Hospitals' can gain popularity within the country.

In 2019, India can emerge collectively as the forefront of medical tourism especially for people from abroad. Medical tourism from the Arabian region is predicted to grow by nearly twenty percent. With competitive medical facilities being offered in India compared to developed countries, India's medical commercial enterprise is predicted to grow quite a lot in the near future.

1.2 The GAP Model of Service Quality

One of the most important customer satisfaction frameworks, The Gap Model of Service Quality, developed in "A conceptual model of service quality and its implications for future research" (The Journal of Marketing, 1985) by A. Parasuraman, VA Zeitham and LL Berry highlights five gaps that organizations face seeking to meet customer's expectations of the customer experience.

The Gap Model of Service Quality distinguishes five gaps –

Gap Number	Gap Name	Parameter 1	Parameter 2
1	Knowledge Gap	Consumer Expectation	Management Perception
2	Policy Gap	Management Perception	Service Quality Specification
3	Delivery Gap	Service Quality Specification	Service Delivery
4	Communication Gap	Service Delivery	External Communications
5	Customer/Client Gap	Customer Expectations	Customer Perceptions

Table 1.1: Five Gaps of Service Quality

While Gap 5 is the service quality shortfall as seen by the customers, and Gaps 1-4 are shortfalls within the service organization. Thus Gaps 1-4 contribute to Gap 5. These Gap Model are shown in the figure below.

1. The Knowledge Gap

It is the difference between the customer's expectations of the service provided and the company's provision of the service. This happens when managers aren't aware or have failed to correctly interpret customer's expectations with regards to their company's offerings. Existence of knowledge gaps mean, company is trying to meet wrong or non-existing consumer needs. In a customer-orientated business, it is important to have a clear understanding of the consumer's need for service. A comprehensive market research can close this gap.

2. The Policy Gap

As per Kasper *et al*, this gap mirrors the executives' mistaken interpretation of the administration strategy into standards and rules for representatives. A few organizations experience challenges making an interpretation of shopper desire into explicit administration quality conveyance. This can incorporate poor administration plan, inability to keep up and continually refresh their arrangement of good client administration or essentially an absence of institutionalization. This gap may see buyers look for a comparable item with better administration somewhere else.

1. The Delivery Gap

This gap uncovered the shortcoming in employee performance. Associations with a delivery gap may determine the administration required to help buyers yet have along these lines neglected to prepare their workers, put great procedures and rules in real life. Subsequently, employees are not well prepared to deal with shopper's needs. Some of the issues experienced when there is a delivery gap are employee's absence of item information leading to experience issues overseeing client questions, poor human resource policies and lack of cohesive teams with inability to deliver.
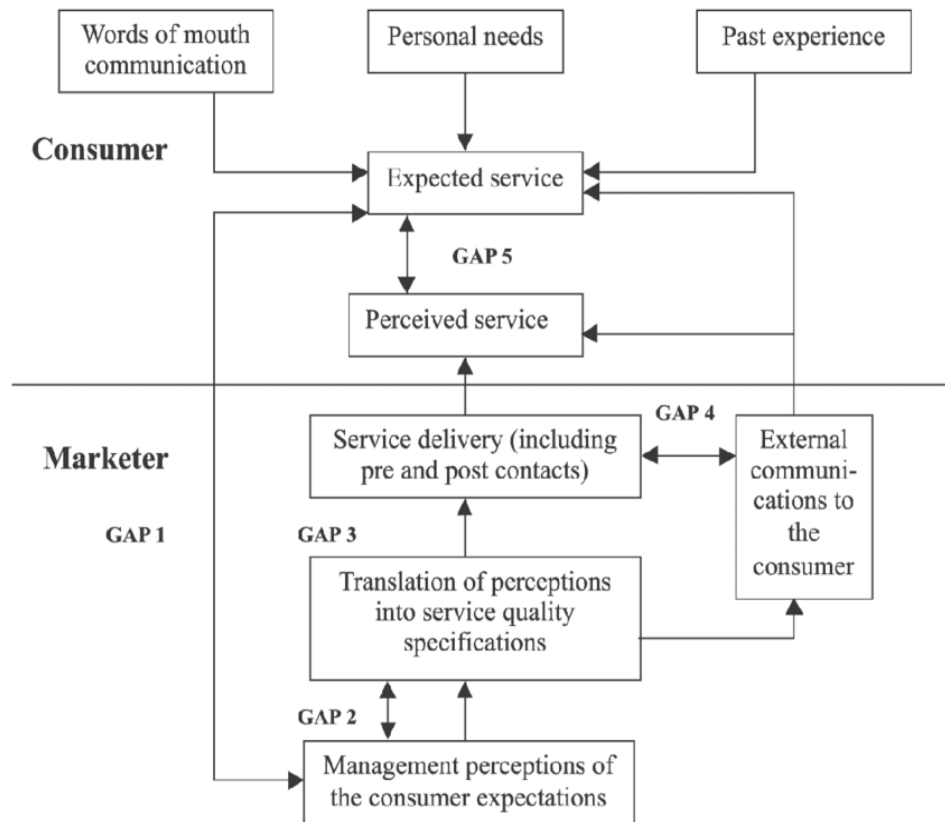
Figure 1.1: GAP Model of Service Quality

2. <u>The Communication Gap</u>

When companies make promises via advertisements and company communication, expectations of customers increase. And when there is a mismatch due to over-promising with the actual service delivery not meeting promises, it creates a communication gap. A communication gap will force customers to seek alternate product sources.

3. <u>The Client / Customer Gap</u>

It is the distinction between client desires and client recognitions. Client desire is what the client expects as per accessible assets and is affected by social foundation, family way of life, identity, socioeconomics, promoting, background with comparative items and data accessible on the web. Client recognition is absolutely abstract and depends on the client's association with the item or administration and the subsequent consumer

loyalties developed. The client gap is the most critical gap and in a perfect world the client's desire would be practically indistinguishable to the client's discernment. In a client orientated methodology, conveying a quality administration for a particular item ought to be founded on a reasonable comprehension of the objective market. Understanding client needs and knowing client desires could be the most ideal approach to close the gap.

In this project we are dealing with Gap 5 – Customer/Client Gap in private hospitals in Gurgaon. Here we try to understand the perception that patients and their families have when they go for service and then further compare it with the satisfaction level that customers have at the end of their journey once the procedures are complete.

1.3   The SERVQUAL Scale

The SERVQUAL Model is an analytical tool that measures the service performance against the expectations of the customer. In other words, it measures the difference between the level of services expected by the customer and the quality of services received by the customer. This model can therefore identify and address the shortcomings in the services that are presently being offered.

The SERQUAL model is an external analysis as it measures the level of services provided against the customers' perceptions and not the organization's perceptions. It allows an organization to identify the patterns against which customer expectations are based. Therefore, the organization can identify the areas in which it is lacking and accordingly try to improve in those areas.

The SERVQUAL model is based on the following ten dimensions –
1. Reliability measures the accuracy of services
2. Security is the amount of trust that the customer places on the provider of services
3. Access is the availability at the right time to the customer
4. Knowing the Customer is the personal rapport that the provider maintains with each customer

5. Responsiveness is fast and efficient address of customer feedback and complaints

6. Credibility is the ease with which the customer believes the provider of services

7. Tangibles are the physical facilities that are visible to the customer like building, decoration etc.

8. Courtesy is the politeness and behaviour of the staff

9. Communication is the timely availability of information for the customers

10. Competence is the capability of the service provider
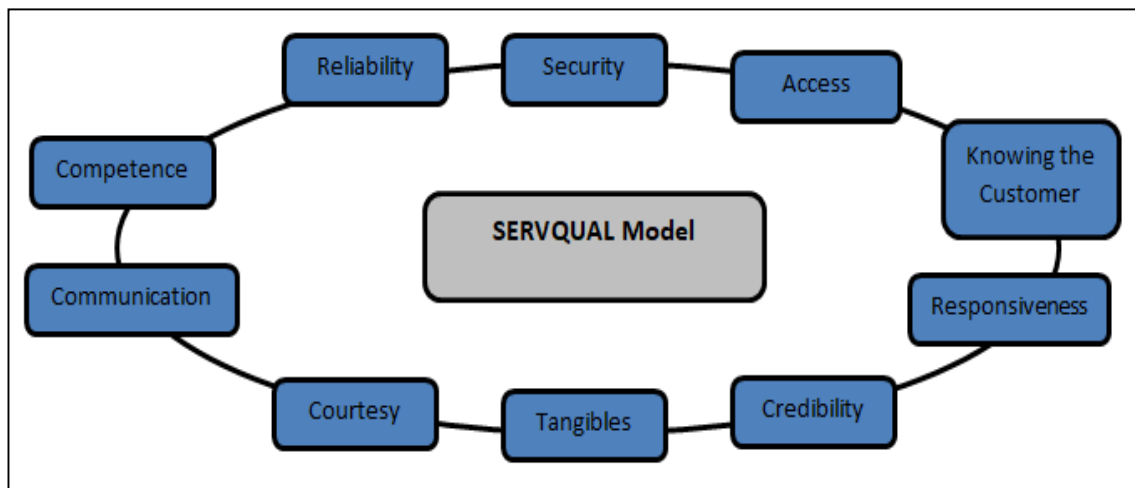
Figure 1.2: Dimensions of SERVQUAL Model

Customer satisfaction depends on the difference between expectations and perception of the service quality. If this difference is positive then there are problems in the system that need to be addressed. The 10 components have now been reduced to 5 which are Reliability, Assurance, Tangibles, Empathy and Responsiveness. Each component is measured against four or five items on a five-point or a seven-point scale.

In our project we have analyzed the responses of patients regarding the services provided by the hospitals in Gurugram. These responses were recorded before and after the treatments were provided and hence the differences between perceptions and expectations have been recorded.

CHAPTER 2: LITERATURE REVIEW

An extensive literature review was performed to identify the current research in the field of SERVQUAL and quality of services, especially for healthcare industry. The results of various papers identified so far have been summarized below along with the identification of gaps and limitations of each of the papers.

Camilleri et al (1998) explores the principles that constitute the SERVQUAL model and looks to perform a comparative study of the service quality in private and public hospitals in Malta using the Donabedian's framework. 16 service quality factors were identified and using the Linkert scale and weighted approach was used to prepare two questionnaires for pre and post service experiences. The findings included the service factors that were considered more important compared to the rest, private hostels were expected to provide a higher service level in the range of hotels and how public hospitals were exceeding the patients' expectations by a wide margin. The paper also points towards the policy changes that management of both private and public hospitals must adopt for better service qulaties to patients and their families.

Arasali et al (2008) worked to find out some determinants to make a comparative study of service quality in public and private healthcare hospitals with reference to Cyprus. 454 patients have been selected by the authors randomly who had recently been treated by hospitals in Famagusta. The patients were asked to respond to questions containing both perception and expectations question corresponding to a SERVQUAL instrument. The paper identifies 6 factors which emerged as most important and the extent to which they were not met in the various hospitals. The paper highlights the roles of the management and how their level of commitment towards service quality sets the precedent for the doctors and nurses for the kind of quality and service they provide. The paper also stresses the need of feedback and complaint procedures for the patients to be treated service wise more effectively and efficiently leading to the importance of training of staff ion all hospitals.

Butt et al (2009) conducted a research in which 400 questionnaires were distributed among 400 eligible respondents among whom 340 people responded. The research was conducted to analyse the services provided by Malaysian hospitals using the Servqual method. The research was done mainly in private hospitals and the data was collected over a period of three months. The results proved that there was a moderate negative gap in the quality of the services which were being provided by the Malaysian hospitals. This negative quality gap was found on each dimension of the Servqual model with reliability and responsiveness showing the highest negative scores. This can indicate that the customers do not trust their healthcare providers. It was also proved that perceptions and expectations are highly correlated. The limitation of this research was that the survey was conducted among younger respondents hence the results do not represent the opinion of people of all age groups.

Rod & Ashill (2010) investigated a model of management commitment to service quality (MCSQ) and service recovery performance in the context of public and private hospitals in New Zealand. The method used is: In a cross-sectional survey grounded in Bagozzi's reformulation of attitude theory, frontline hospital employees (FHEs) were asked about how MCSQ impacted on their service recovery performance in both the public and private sectors. The findings were the results of the study suggest that the relationship between MCSQ and service recovery performance is mediated by organizational commitment. The research advances understanding of frontline service recovery performance in a public healthcare setting and the findings indicate that public healthcare managers can take initiatives in a lot of ways to help progress towards the achievement of frontline service recovery excellence. With the exception of the relationship between MCSQ and organizational commitment, there are no differences between FHEs in the private and public sectors. Very little attention has been given to a comparative examination of those managerial practices critical for improving frontline employee service recovery efforts in a public and private healthcare context. The research addresses this paucity.

Chakravarty (2011) conducted a research at a remote service hospital to find out

any service gap between customer expectations and perceptions in respect of the hospital outpatient department (OPD) services. A cross-sectional study method was used and was conducted using SERVQUAL as the survey instrument, the instrument being validated for use in the hospital environment. Customer ratings across 22 check points of the survey instrument were sampled in paired expectation and perception scores and then service quality gaps were identified and statistically analyzed. It was identified that service quality gaps existed across all the 5 parameters of the survey instrument, with statistically significant gaps occurring across the parameters of 'tangibles' and 'responsiveness.' It was further confirmed by a total unweighted SERVQUAL score of (–) 1.63. The research concludes that in the service delivery of OPD a significant service quality gaps exists, which need to be tackled by the hospital management through focused improvement efforts.

Peprah and Atarah (2014) accessed patients' satisfaction in Sunyani Regional Hospital, Ghana. The final result of this research was that the overall patients' satisfaction of the service quality of the hospital was good. Then again, the gap scores demonstrated negative holes for four of the administration quality measurements out of six utilized in the examination, showing that patients were not happy with the service quality in connection to those measurements. This subsequently calls for the executive's activity to enhance service conveyance in those regions. Tangibility and Empathy measurements scored positive which attests patients' impression about the service. The study was limited to patients of a public hospital only and not private. Also, it only considered the functional aspect of service delivery. Hence, only patients' views were used for the research.

Bhupesh et al (2015) conducted a survey with 340 respondents regarding the service quality in hospitals in Madhya Pradesh. The paper had a structured questionnaire which consisted of 22 questions. There were two sets of questionnaire forms: one of which was regarding the patient expectations and the other one was regarding the perceptions of the patients. The service quality consisted of two dimensions: one was the core service that was the treatment that was being provided and the other dimension was

the process dimension which described how the service was being provided. The Servqual model was used to identify the gaps. The data was analysed using reliability test and correlation analysis. The results showed that patient satisfaction is influenced by the services that the hospitals provide. The service quality dimensions which needed improvement were also identified on the basis of this research. It also identified that the ability to contact employees regularly and assess their service experiences was an important factor which drives customer satisfaction. Among all the respondents 190 people hailed from Ujjain, 60 people hailed from Dewas and the remaining 90 were from Indore city. One limitation of this research was that the sampling method was completely random. Another limitation was that the research was conducted in just 5-6 hospitals of Ujjain, Dewas and Indore.

Jiwan and Sharma (2016) performed a study that was limited to the cross section of Punjab. A positive correlation (0.69) was observed between the service quality and patients' satisfaction. Humility of nurses, nurses ability to respect their family members, listening to patients and relative carefully were few of the factors affecting patients' satisfaction. Along with all these, other factors also include work environment of nurses and the staffing ratio of nurses and patients.

Kumar et al (2016) performed a comparison between expectations and perception with help of five components namely tangibility, reliability, responsiveness, assurance and empathy. It was observed that the perception levels were lower than the expectations which implied that the quality of service was perceived below the expectations of the respondents. Hence, it can be concluded that the private hospitals Chhattisgarh provides services above the expectations of the patients. But, there was still a need fulfil the expectation of patients & to enhance their perception of the service quality since the gap score was negative.

Asma et al (2017) conducted a research among 310 people who were inpatients of public and private hospitals. The Servqual model was used and a questionnaire was made where statements had to be rated on a Likert scale from 1 to 5. The results were analysed using SPSS and the gaps were identified between the level of services offered

and those expected. There were considerable gaps identified and patients were not satisfied by the services offered by either the private hospitals or the public hospitals. Private hospitals scored better in terms of the perceived quality of services. Public sector hospitals scored more on perceived services of the medical services provided by the physicians whereas private hospitals scored more on perceived scores of cleanliness and room quality. The study was conducted on an eight-dimensional framework and the private sector and public sector hospitals were compared on the perceived quality of services offered by both to understand the differences in the level of services provided by these hospitals. On the basis of these gaps the major dimensions along which improvements can be made were identified. One major limitation of this research was that the sample size was very small to provide complete understanding about the service quality in healthcare.

Ahmed et al (2017) delves into the financial banking sector encompassing both local and foreign banks to analyse the effects of perceived value and customer trust, and role of technology with respect to banking services and customer satisfaction. This paper has used a modified SERVQUAL model of four dimensions: empathy, competence, reliability, and online service. Based on an adapted questionnaire with 830 responses, factor analysis, confirmatory factor analysis and bootstrapping methods were performed. The authors concluded: The modified SERVQUAL with four dimensions had significant impact on consumer satisfaction, Value and trust positively mediated the bootstrapping methods and the modified SERVQUAL model and Implementing technology works as a moderating agent in the banking sector. The work done would help senior management in financial institutions to integrate technology customized for its customer base to provide seamless banking services and gain competitive advantage.

Ameryoun et al (2017) pursues to develop an approach to determine the influence of dimensions of service qualities' on service quality based on data envelopment and SERVQUAL model. The research is based out of Tehran and the factors were determined using Exploratory Factor Analysis. The paper has found a new factor, "Trust Services" which has the most importance in the Perceived Service Quality Index

(PSQUI) followed by "tangibles," "assurance," "empathy," and "responsiveness," respectively. The research helps the management of hospitals to systematically identify the factors which would help impact the customer's perception of the service quality in their organization the most and work towards improvement

Ali et al (2018) explore to perform a comparative study between the expectations and perceived performance of Indian patients in regards to healthcare services with focus on service quality factors that are important and required to meet the needs of patients. Adapted questionnaire was used to question 210 patients using the 5-point Linkert scale. The patients were mainly either the ones who had just undergone some procedure and were discharged from hospitals or about to get discharged. The paper uses the SERVQUAL Gap model to measure service quality discussing the importance of service quality in India. The findings that have emerged are some of the services like empathy, parking spaces in hospitals, responsiveness amongst few others are the most satisfying service quality factors for Indian patients. The limitations that come out are: the sample size, restricted geography and that the gap would have been better analysed had it between patient's perception and that of the service provider's perception of the customer's expectations satisfaction. This paper is beneficial for healthcare organizations to strive for better customer/patient satisfaction.

Pai et al (2018) developed a new scale to measure service quality. They reasoned that in spite of the fact that estimating healthcare service quality is definitely not something new, the instruments used to gauge are timeworn. With the shift in focus to patient driven procedures in hospitals and perceiving healthcare to be diverse contrasted with different services, service quality measurement should be tuned explicitly to healthcare. The motivation behind this paper is to plan a calculated system for estimating patient perceived hospital service quality (HSQ), in view of existing service quality work. The technique utilized is utilizing HSQ theories, extending existing healthcare service models and literature, a conceptual framework is proposed to quantify HSQ. The paper traces patient perceived service quality measurements. The discoveries are: an instrument for estimating HSQ measurements is created and contrasted and other

service quality estimating instruments. The most recent measurements are in accordance with past work, however a relationship dimension is included. Practical implications are that the framework enables managers to evaluate healthcare services quality in corporate, public and medical colleges. It allows scholars and experts to assess HSQ from a patient point of view.

2.1 Research Gaps

The researches done till now have either operated in silos by including a single hospital of a particular speciality or compared service quality gap in select few public and private hospitals. But no tangible research is available which compares service delivery expectations to patients' perception level for these services especially for the large number of private hospitals in Gurgaon city in Haryana, India.

2.2 Definition of Variables

In this project we have two sets of variables – one set lists down the expectations of a patient from a private hospital in terms of its service quality before being operated while the other set of variables represent the perceptions of patients from a private hospital in terms of its service quality after being operated. Considering the relative duality of the variables, the variables are designated as follows –

a1-a24 – Variables ascertaining expectation of patients (Before being operated/served by Hospital)

c1-c24 – Variables ascertaining perceptions of patients (After being operated/served by Hospital)

2.3 Objective

Service quality refers to the methodology of obtaining a difference between expected service and a perceived service of any service offering. In today's globalized and connected world, services have started dominating over products in almost all fields. Providing service quality, is therefore given for any service industry. Healthcare industry

offers large amount of services, many of which are of critical nature and require expertise of service provider.

The purpose of this study is to determine whether patients are satisfied with quality of services they receive from private hospitals in Gurugram, Haryana region. The idea is to provide recommendations to Private Hospitals in Gurugram regarding their quality of services so that necessary improvements could be made in their functioning which shall lead to patient satisfaction, With this study, by encompassing a large number of private hospitals in Gurgaon, considered as The Millennium City of India, we will also try to broaden the scope of coverage and ensure to provide an accurate reference data for improving medical services for future researches.

2.4 Research Questions

In this project we plan to identify answer to the following research question-

Are Private Hospitals in Gurugram, Haryana providing satisfactory quality of services to its patients? If not, what can be scope of improvement in their functioning?

2.5 Hypothesis

Ha: The mean difference between expectation and perception of tangibility construct of patients is equal to zero in total population.

Hb: The mean difference between expectation and perception of reliability construct of patients is equal to zero in total population.

Hc: The mean difference between expectation and perception of responsiveness construct of patients is equal to zero in total population.

Hd: The mean difference between expectation and perception of assurance construct of patients is equal to zero in total population.

He: The mean difference between expectation and perception of empathy construct of patients is equal to zero in total population.

Hf: The mean difference between expectation and perception of affordability construct of patients is equal to zero in total population.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Participants

As per Census 2011 data, Gurgaon had a population of 1,514,432 of which there were 816,690 male and 697,742 females. Gurgaon recorded a 73.96% increase in its population compared to 2001 Census figures. Average Literacy for Gurgaon was 84.7% whereas average male and female literacy rates were 90.46% and 77.98% respectively. Approximately, 70% of Gurgaon population lived in urban centres. A careful analysis of above figures reveals that Gurgaon's population is increasingly exponentially with more and more literate population being attracted to the city. A major source of increasing population is migration from nearby cities and states.

Based on Census 2011 analysis, a survey founded 29% increase in migrant population of Gurgaon between 2001 and 2011. Most migrant population in Gurgaon relocate either due to marriages or job prospects and eventually settle down permanently/temporarily.

Considering this aspect in mind, it was felt that the standard SERVQUAL questionnaire to evaluate service quality was insufficient to carry this study. The SERVQUAL statements was slightly modified and adapted to include the aspect of affordability of the medical services and a MODIFIED scale was developed to carry out this study.

Sampling Method: Convenience sampling across the following eleven private hospitals of Gurugram.

S.No	Name of Hospital	Location
1	Metro Hospital & Heart Institute	Palam Vihar
2	Fortis Memorial Research Institute	HUDA City Centre
3	Artemis Hospital	Sector-51
4	Apollo Cradle	SCO - 1, 2 & 3, Sector 14
5	Max Hospital Gurgaon	B-Block, Sushant Lok-1
6	Columbia Asia Hospital Gurgaon	Palam Vihar

7	Medanta - The Medicity Gurgaon	Sector-38
8	GNH Hospital	Sector-14 MG Road
9	VPS Rockland	IMT Manesar
10	Park Hospital	South City 2, Sohna Road
11	Jain Hospital	Sector -14

Table 3.1: Private Hospitals of Gurgaon surveyed

Sample Size: In all 398 responses were gathered during the survey out of which 8 were discarded due to missing variables and outliers. Post data clean-up, 390 responses were finally used to perform the analysis.

Sample Population – 18 years and above aged patients who have stayed for alteast 2 days in Hospital and have capacity for independent judgment

3.1 Procedure

The following procedure was adopted for the study

- An in-depth extensive Literature Review was performed to gauge the current level of research performed in the field of Service Quality especially the SERVQUAL scale and gaps were analysed based on the research.

- Based on the gaps identified in the Literature Review, the hypothesis to be tested were formulated.

- Next, an existing questionnaire with the associated scale (that was a 5-point Likert Scale) was picked up from a relevant research paper, was modified to include aspects of affordability and subsequently tested on our demographic population.

- Based on the test results, using the SPSS (Statistical Process for Social Sciences) software, Principal Component Analysis (PCA) was performed to identify constructs that define the Service Quality for the patients.

- Once the constructs were ready, the questionnaire based on this MODIFIED-SERVQUAL scale (See Questionnaire Section) was administered in person as well as via Google Form to the target population.

- Next, the responses thus obtained were cleaned for missing values and outliers primarily to obtain a set of clean responses.
- Finally, based on obtained results the Paired Sample T-Test was performed for testing of the hypotheses.

CHAPTER 4: RESULTS AND INTERPRETATION

4.1 Factor Analysis

Factor analysis is frequently used to develop questionnaires. If we want to measure an ability or a trait, we need to make sure that the questions asked related to the constructs that we intend to measure are structurally valid.

The below table highlights the statements utilized for a preliminary questionnaire. This questionnaire includes the 22 basic statements of SERVQUAL along with a few additional statements to incorporate the affordability aspect.

Key	Statement	Not High	Not Too High	General	Relatively High	High
b1	The cost of medical services is issued in a timely and convenient manner	1	2	3	4	5
b2	The hospital medical expenses are reasonable	1	2	3	4	5
b3	The hospital executes your treatment plan with accuracy	1	2	3	4	5
b4	The hospital staff get things done the first time	1	2	3	4	5
b5	Providing timely services	1	2	3	4	5
b6	Hospital accurately record your diagnosis and treatment	1	2	3	4	5
b7	The hospital staff provide prompt services	1	2	3	4	5
b8	Patient feel safe in the hospital	1	2	3	4	5
b9	Medical staff are knowledgeable enough	1	2	3	4	5
b10	Hospital staff are always courteous towards patients	1	2	3	4	5
b11	The hospital staff communicate to	1	2	3	4	5

	patients about service provision					
b12	The hospital pay attention to and deal with your opinions or complaints	1	2	3	4	5
b13	Medical staff willingness to help patients	1	2	3	4	5
b14	Detailed list of the items in the hospital charges	1	2	3	4	5
b15	The hospital medical staffs are worth for your trust	1	2	3	4	5
b16	The hospital medical staffs are with good medical ethics	1	2	3	4	5
b17	Hospitals provide health promotion, service guide and other information	1	2	3	4	5
b18	Hospital attractiveness and visual appeal	1	2	3	4	5
b19	Hospital medical staff wear clean and decent uniforms	1	2	3	4	5
b20	Modern equipment in the hospital	1	2	3	4	5
b21	Attractiveness of medical materials such as pamphlets, reports, statements	1	2	3	4	5
b22	The hospital gives priority to your benefits, not the benefits of medical staff	1	2	3	4	5
b23	Medical staff ask you for advice on treatment	1	2	3	4	5
b24	Knowledgeable personnel to answer patients' questions	1	2	3	4	5

Table 4.1: Preliminary Questionnaire

After gathering 49 responses through this test survey from patients, the Principal Component Analysis, a technique that reduces number of variables to identify important constructs, was performed. The rotated component matrix highlighted the following 6

groupings as shown below –

Rotated Component Matrix[a]							Interpreted Construct
	Component						
	1	2	3	4	5	6	
b20	0.787						Tangibility
b18	0.770						
b19	0.750						
b21	0.744						
b17	0.721						
b16		0.682					Reliability
b15		0.620					
b8		0.715					
b10		0.708					
b9		0.699					
b11			0.685				Responsiveness
b7			0.592				
b12			0.572				
b13			0.982				
b5				0.785			Assurance
b4				0.776			
b3				0.698			
b6				0.608			
b24					0.846		Empathy
b23					0.843		
b22					0.764		
b2						0.816	Affordability
b1						0.788	
b14						0.599	
Extraction Method: Principal Component Analysis.							
Rotation Method: Varimax with Kaiser Normalization.							
a. Rotation converged in 7 iterations.							

Table 4.2: Rotated Component Matrix obtained

To ensure that the scale developed is structurally valid, Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy and Bartlett's Test of Sphericity were obtained for the above MODIFIED-Scale. The results for the same are given below in the table –

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.845
Bartlett's Test of Sphericity	Approx. Chi-Square	1808.413
	df	6
	Sig.	0.000

Table 4.3: KMO and Bartlett's Test for Preliminary Questionnaire

Generally, the KMO statistics varies between 0 and 1 where a value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations; hence factor analysis is likely to be inappropriate while a value close to 1 indicates that the patterns of correlations are relatively compact and so factor analysis should yield distinct results. KMO greater than .5 is acceptable. For our case, the KMO statistic is .845, stating that 49 test responses were sufficient to generate distinct factors in factor analysis.

The Sig. value for Bartlett's Test of Sphericity was 0.000 indicating that the correlation matrix is an identity matrix i.e. variables are unrelated and unsuitable for structure detection. Both the tests indicate that the PCA analysis could be successfully performed on the data set and concluding results could be established.

The 6 dimensions of MODIFIED-SERVQUAL scale obtained are –

1. Tangibility

The tangibility aspect for hospital referred to various equipment, facilities and materials which a patient interacts with right from his arrival till his departure. The tangibility dimension plays a significant role to ensure seamless movement of patients in the hospital premises and the vicinity.

2. Reliability

The reliability aspect for hospitals reflect the ability of hospital doctors and staff to perform their services dependably and accurately. In the context of hospitals, reliability is of utmost importance and usually considered a given since the patient generally

chooses the Hospital to get operated based on past experiences, word-of-mouth etc.

3. Responsiveness

The responsiveness aspect for hospitals indicate the degree of promptness as well as willingness shown by Hospital doctors and staff in operating the patient. Generally, patients appreciate Hospitals with high responsiveness due to critical nature of the services being offered by them.

4. Assurance

The aspect of assurance refers to courtesy and knowledge of hospital employees, their propensity to build up trust and confidence among patients, making patient aware of the treatment being meted etc thereby assuring them of a satisfactory service. Assurance directly affects retention and customer satisfaction.

5. Empathy

The aspect of empathy indicates the degree of care and individualized attention a hospital provides to its customers. Empathy affects the ability of pleasure which a patient can extract from his/her stay at hospital.

6. Affordability

The newly introduced aspect of affordability measures the degree to which patients are able to afford the expenses incurred at a hospital. It indicates whether the services provided by hospitals are worthy enough of the expense incurred by the patient there and affects the patient's perception of service quality.

4.2 Descriptive Statistics

The below table shows the Descriptive Statistics of the population of 390 who were administered the Questionnaire. The main table captures mean, variance and kurtosis of various parameters such as Gender, Age, Education Level, Average Monthly Income and the Department in which patient got treated. It also captures mean, variance and

kurtosis for three general questions whether the patient is aware of the disease he is suffering, whether he is aware of the treatment he's been provided and whether he is satisfied with the doctor's functioning.

Statistics									
		Gender	Age	Education level	Average income per month	Medical department	Disease is clear	Treatment is clear	Satisfied with Doctor
N	Valid	390	390	390	390	390	390	390	390
	Missing	0	0	0	0	0	0	0	0
Mean		1.59	2.29	2.74	2.84	3.31	1.03	1.07	1.81
Std. Deviation		0.493	1.311	1.095	1.256	2.050	0.180	0.250	0.702
Variance		0.243	1.719	1.199	1.579	4.202	0.032	0.062	0.493
Skewness		-0.356	0.761	-0.387	0.240	0.840	5.220	3.488	0.775
Std. Error of Skewness		0.124	0.124	0.124	0.124	0.124	0.124	0.124	0.124
Kurtosis		-1.883	-0.542	-1.155	-0.962	-0.199	25.374	10.217	1.511
Std. Error of Kurtosis		0.247	0.247	0.247	0.247	0.247	0.247	0.247	0.247
Range		1	4	3	4	7	1	1	4

Table 4.4: Descriptive Statistics

The below table captures individual split of the Population which are subsequently shown through charts –

Gender of Patient					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	161	41.3	41.3	41.3
	Female	229	58.7	58.7	100.0
	Total	390	100.0	100.0	

Table 4.5: Frequency Procedure for Gender

Age of Patient					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30 Years	142	36.4	36.4	36.4
	31-40 Years	105	26.9	26.9	63.3
	41-50 Years	69	17.7	17.7	81.0
	51-60 Years	35	9.0	9.0	90.0
	61 Years and above	39	10.0	10.0	100.0
	Total	390	100.0	100.0	

Table 4.6: Frequency Procedure for Age of Patient

Education Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Junior and below	77	19.7	19.7	19.7
	High School	65	16.7	16.7	36.4
	Undergraduate	129	33.1	33.1	69.5
	Postgraduate	119	30.5	30.5	100.0
	Total	390	100.0	100.0	

Table 4.7: Frequency Procedure for Education Level

Average Income per Month					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 40,000	59	15.1	15.1	15.1
	40,000-60,000	115	29.5	29.5	44.6
	60,000-80,000	96	24.6	24.6	69.2
	80,000-1,00,000	69	17.7	17.7	86.9
	Above 1,00,000	51	13.1	13.1	100.0
	Total	390	100.0	100.0	

Table 4.8: Frequency Procedure for Average Income per Month

Medical Department of Treatment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Internal medicine	84	21.5	21.5	21.5
	Surgery	77	19.7	19.7	41.3
	Gynecology & Obstetrics	91	23.3	23.3	64.6
	Paediatrics	44	11.3	11.3	75.9
	Gastroentrology	26	6.7	6.7	82.6
	Ophthalmology	29	7.4	7.4	90.0
	Image inspection section	14	3.6	3.6	93.6
	Others	25	6.4	6.4	100.0
	Total	390	100.0	100.0	

Table 4.9: Frequency Procedure for Medical Department of Treatment

Patient is Aware of Disease					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	377	96.7	96.7	96.7
	No	13	3.3	3.3	100.0
	Total	390	100.0	100.0	

Table 4.10: Frequency Procedure for whether patient is aware of disease

Patient is Aware of Treatment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	364	93.3	93.3	93.3
	No	26	6.7	6.7	100.0
	Total	390	100.0	100.0	

Table 4.11: Frequency Procedure for whether patient is aware of treatment

Patient satisfied with Doctor					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Satisfied	131	33.6	33.6	33.6
	Satisfied	209	53.6	53.6	87.2
	General	45	11.5	11.5	98.7
	Dissatisfied	3	.8	.8	99.5
	Very Dissatisfied	2	.5	.5	100.0
	Total	390	100.0	100.0	

Table 4.12: Frequency Procedure for whether patient is satisfied with doctor

The below charts help to visualize the population with ease –
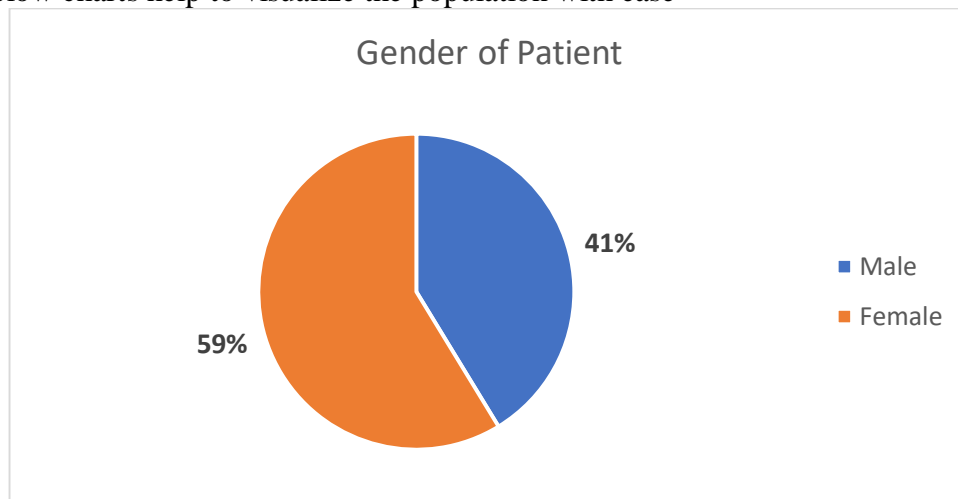
Figure 4.1: Gender split of respondents
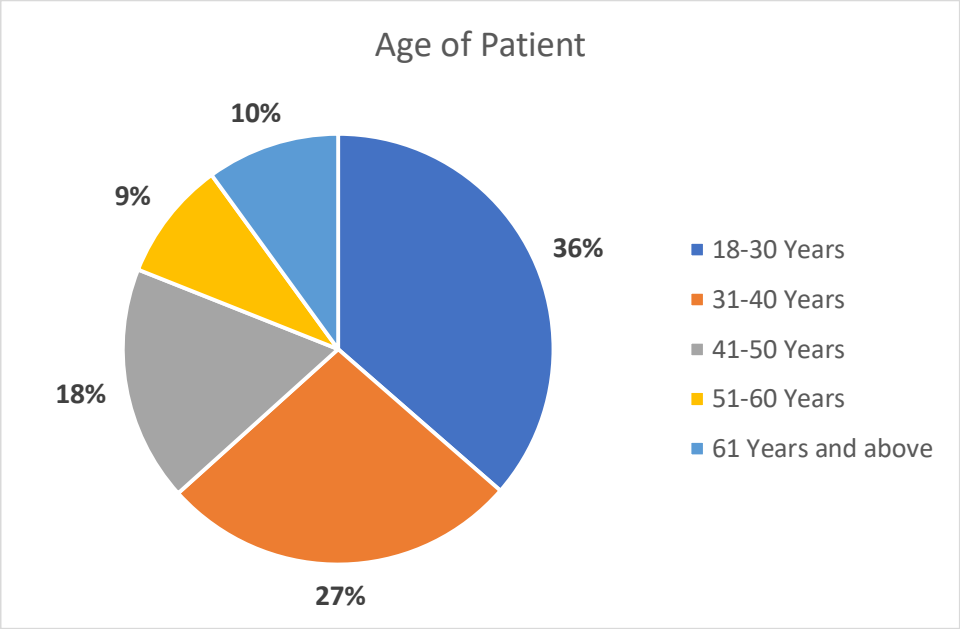
Figure 4.2: Age split of respondents
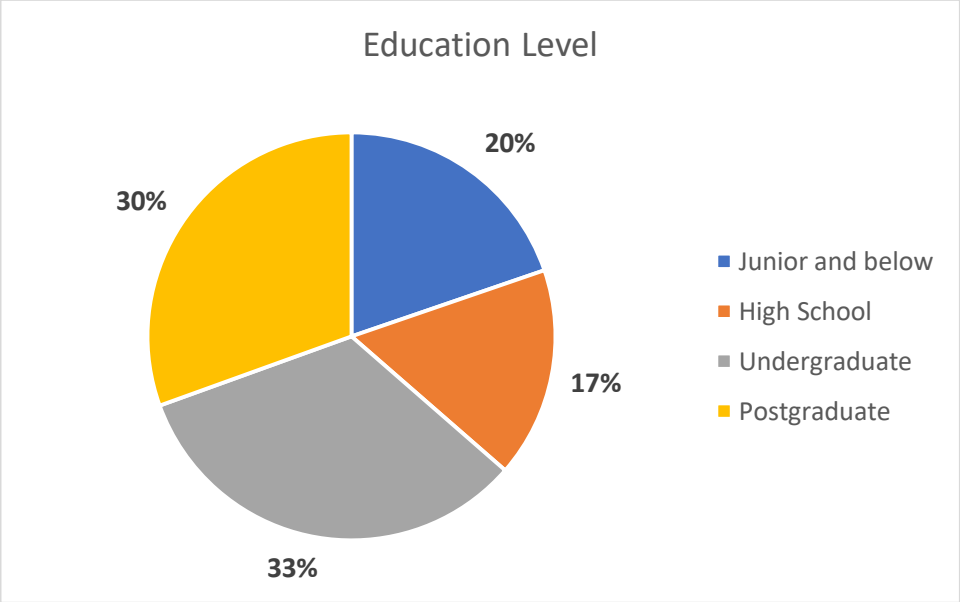
Figure 4.3: Education level split of respondents
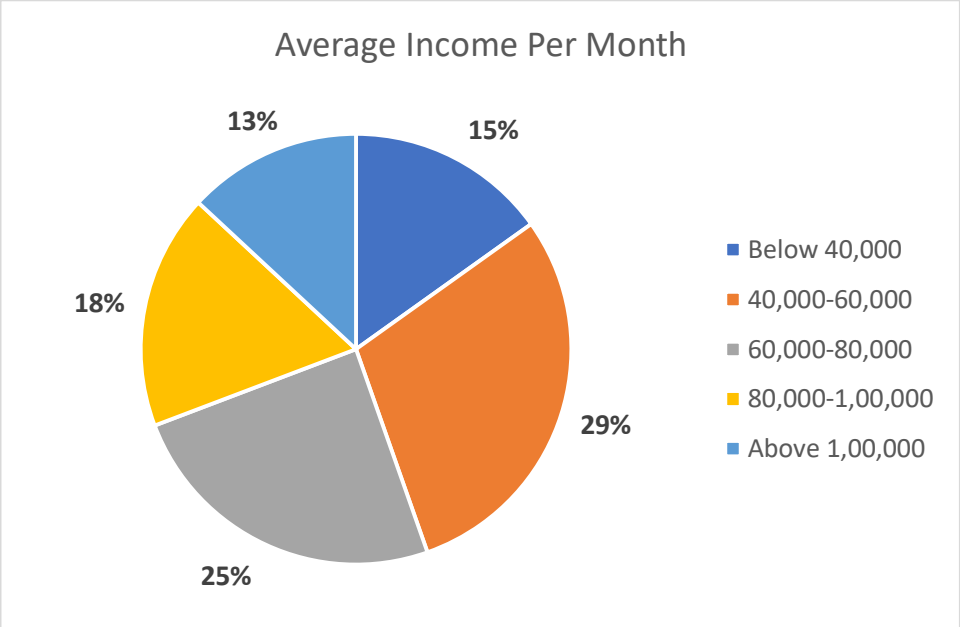
Figure 4.4: Average Income Per Month of respondents
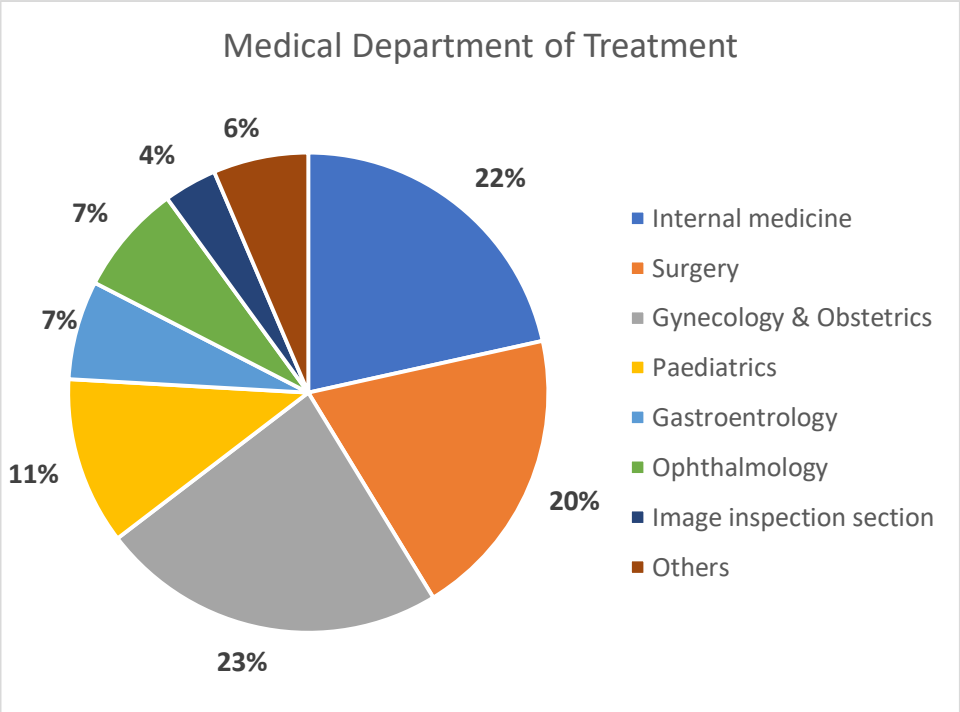
Figure 4.5: Medical Department where respondents sought treatment
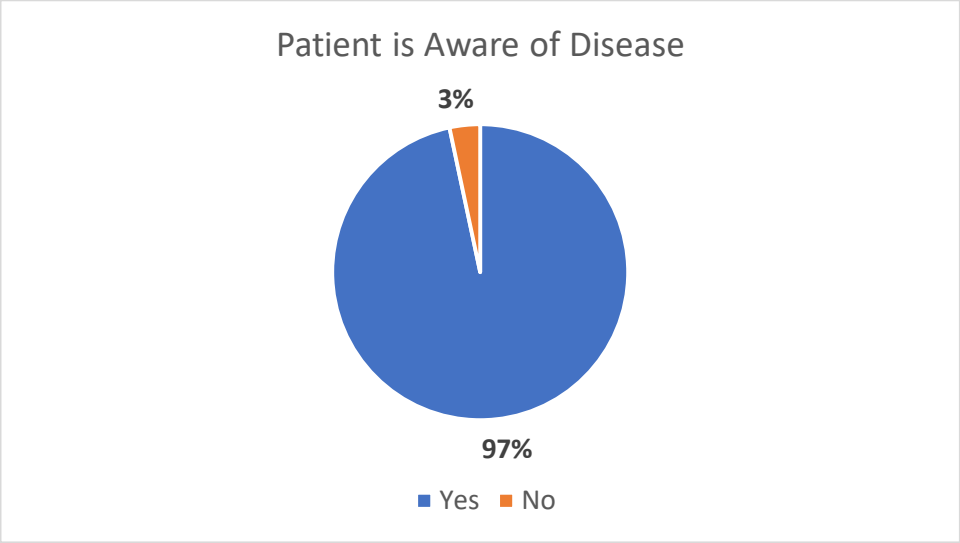
Figure 4.6: Percent of patients who were aware of their disease
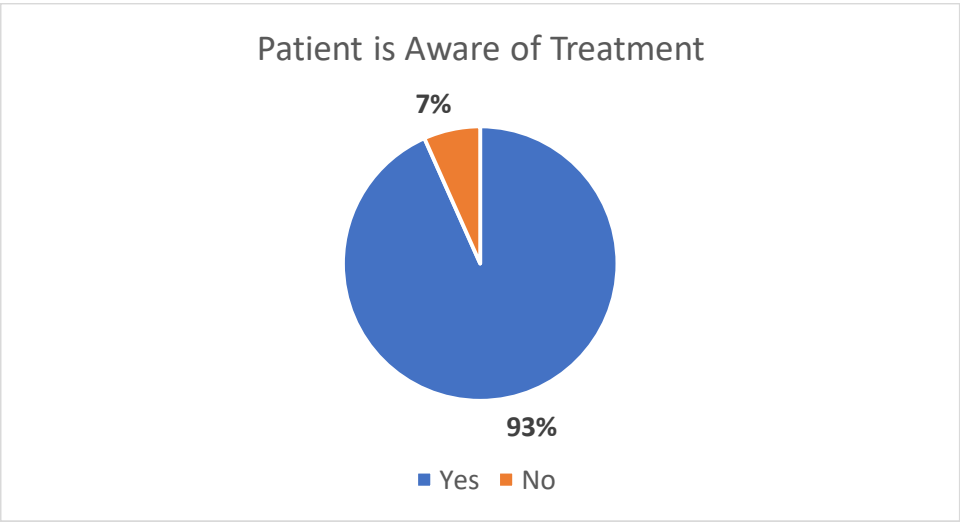
Figure 4.7: Percent of patients who were aware of their treatment
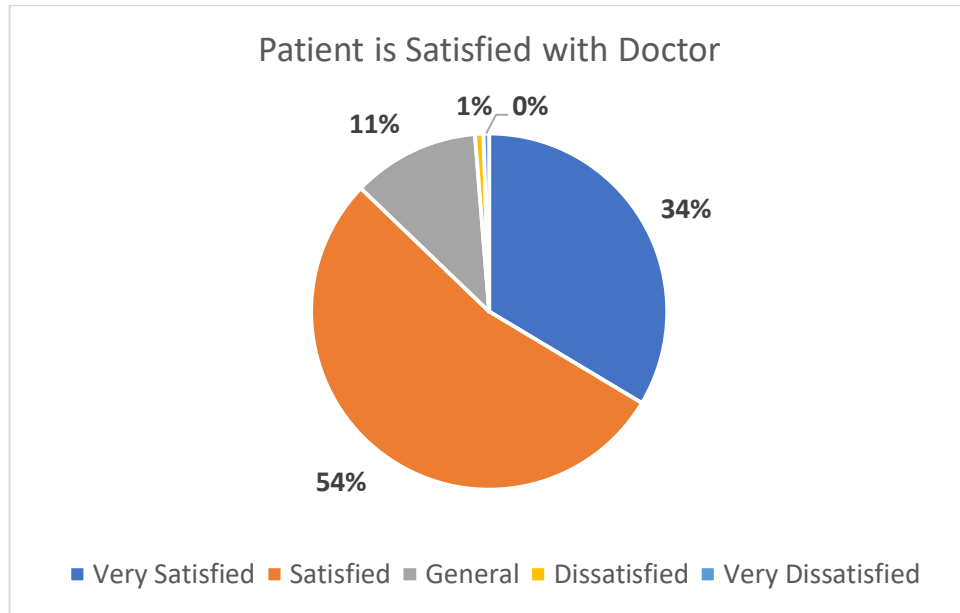
Figure 4.8: Percent of patients who were satisfied with Doctor

4.3 Reliability Testing of MODIFIED-SERVQUAL Scale

The actual Questionnaire included the 24 statements and focussed to measure Expectation and Perception of Service Quality of hospitals.

Patient Expectation (E) –

- Expected health service before receiving medical services
- Influenced by past experiences, image of medical institutions, oral communication from friends/relatives as well as public opinion.

Patient Perception (P) –

- Actual feelings about quality of service provided by hospital once a patient has undergone treatment/medical service.
- Governed completely by individual's experience

A higher value on each of the items indicate a that patient's expectation and perceptions have been positive.

The questionnaire consisted of the following 6 constructs –

S.No	Construct	Patient Expectation Questionnaire Statements (a)	Patient Perception Questionnaire Statements (c)
1	Tangibility	a1 to a5	c1 to c5
2	Reliability	a6 to a9	c6 to c9
3	Responsiveness	a10 to a13	c10 to c13
4	Assurance	a14 to a18	c14 to c18
5	Empathy	a19 to a21	c19 to c21
6	Affordability	a22 to a24	c22 to c24

Table 4.13: Actual Questionnaire Design

Reliability analysis was performed on the Questionnaire factors as shown below.

Expectations Questionnaire (Statements a1-a24):

An overall reliability of 0.954 was obtained for Expectation Questionnaire while individual reliability through the Cronbach Alpha method was also significantly high.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.954	0.956	24

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a1	100.96	129.957	.629	.	.953
a2	100.98	128.594	.644	.	.953
a3	100.98	129.097	.570	.	.954
a4	101.00	128.044	.640	.	.953
a5	100.99	128.010	.626	.	.953
a6	100.79	128.288	.713	.	.952
a7	100.86	127.223	.655	.	.953
a8	100.83	127.548	.740	.	.952
a9	100.77	128.319	.732	.	.952
a10	100.75	129.124	.716	.	.952
a11	100.79	128.643	.707	.	.952
a12	100.84	127.027	.722	.	.952
a13	100.78	127.635	.757	.	.951
a14	100.77	128.838	.650	.	.953
a15	100.75	127.689	.785	.	.951

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a16	100.70	128.006	.772	.	.951
a17	100.67	128.110	.761	.	.952
a18	100.66	128.964	.720	.	.952
a19	100.69	128.529	.750	.	.952
a20	100.76	127.784	.744	.	.952
a21	100.80	128.102	.664	.	.952
a22	100.99	129.177	.517	.	.955
a23	100.92	129.952	.514	.	.954
a24	100.97	130.241	.468	.	.955

Table 4.14: Reliability Tests for Expected Questionnaire

The above table indicates that for each of the 24 manifests, the Cronbach Alpha reliability remains almost same or falls from Overall Reliability of 0.954 i that manifest is removed.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.947
Bartlett's Test of Sphericity	Approx. Chi-Square	7268.778
	df	276
	Sig.	0.000

Table 4.15: KMO and Bartlett's Test for Expected Questionnaire

The KMO measure indicates a value of 0.947(> 0.7) indicating sampling adequacy while the Sig value of Bartlett's Test of Sphericity indicates 0.000 (< 0.05) indicating good reliability of scale.

Perceptions Questionnaire (Statements c1-c24):

An overall reliability of 0.906 was obtained for Perceptions Questionnaire while individual reliability through the Cronbach Alpha method was also significantly high.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.906	0.911	24
Item-Total Statistics		
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted

c1	89.56	114.936	.412	.308	.904
c2	89.68	114.336	.328	.260	.907
c3	89.43	116.168	.317	.295	.906
c4	89.61	114.012	.416	.464	.904
c5	89.67	113.909	.404	.538	.905
c6	89.48	110.425	.594	.568	.901
c7	89.35	113.538	.487	.421	.903
c8	89.41	113.019	.552	.544	.902
c9	89.39	112.613	.581	.585	.902
c10	89.49	111.073	.576	.511	.901
c11	89.58	110.450	.562	.545	.901
c12	89.70	109.743	.564	.583	.901
c13	89.74	108.938	.550	.590	.902
c14	89.59	109.354	.563	.476	.901
c15	89.42	111.833	.623	.685	.901
c16	89.42	112.043	.581	.675	.901
c17	89.36	111.450	.640	.626	.900
c18	89.35	111.965	.621	.575	.901
c19	89.50	110.158	.588	.591	.901
c20	89.53	110.887	.566	.584	.901
c21	89.76	109.290	.543	.445	.902
c22	90.02	110.694	.439	.547	.905
c23	90.05	109.938	.487	.794	.904
c24	90.08	110.685	.443	.754	.905

Table 4.16: Reliability Tests for Perceived Questionnaire

The above table indicates that for each of the 24 manifests, the Cronbach Alpha reliability remains almost same or falls from Overall Reliability of 0.906 if that manifest is removed.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.879
Bartlett's Test of Sphericity	Approx. Chi-Square	4892.320
	df	276
	Sig.	0.000

Table 4.17: KMO and Bartlett's Test for Perceived Questionnaire

The KMO measure indicates a value of 0.879 (> 0.7) indicating sampling adequacy

while the Sig value of Bartlett's Test of Sphericity indicates 0.000 (< 0.05) indicating good reliability of scale.

The individual reliabilities of the 6 dimensions for both Expectation and Perception Questionnaire is highlighted in the table below. All the Cronbach Alpha reliabilities are above 0.7.

S.No	Construct	Cronbach Alpha Reliability Expectations Questionnaire (a1-a24)	Cronbach Alpha Reliability Perceptions Questionnaire (c1-c24)
1	Tangibility	0.868	0.727
2	Reliability	0.875	0.754
3	Responsiveness	0.878	0.808
4	Assurance	0.893	0.825
5	Empathy	0.885	0.799
6	Affordability	0.896	0.893

Table 4.18: Cronbach Alpha for MODIFIED SERVQUAL Scale Dimensions

4.4 GAP Analysis of patient's satisfaction

In this section, we evaluate algebraically and through SPSS, the GAP between Expected Service Quality by a patient and his Perceived Service Quality. This basically involved utilizing SPSS's Pair Sampled-T Test to obtain the results.

4.4.1 Pair Sample T-Test:

The paired sample t test is useful when we want to determine whether the mean difference between two variables, measured on the same subjects, at two different moments, is statistically significant. In order to run the paired-Samples t test, we must have two paired measurements for each subject.

4.4.2 Null and Alternate Hypothesis of Pair Sample T-Test:

The null and alternative hypotheses of the paired samples t test is stated below –

H0: the mean difference between the variable scores is equal to zero in the total population

H1: the mean difference between the variable scores is different from zero in the total

population

We will reject the null hypothesis if the p value is lower than 0.05

In our case, we aim to measure service quality of private hospitals before and after a patient gets treated there, i.e. his expectations from the service quality before being treated and his perceptions of service quality after being treated at the hospital.

The below Paired Sample Statistics table highlights the results of Pair Sampled-T Tests based on patient's response for each of the 24 manifests. Statement c's refers to perception and statement a's refer to expectation.

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	c1	3.92	390	0.657	0.033
	a1	4.26	390	0.643	0.033
Pair 2	c2	3.80	390	0.866	0.044
	a2	4.24	390	0.718	0.036
Pair 3	c3	4.06	390	0.666	0.034
	a3	4.24	390	0.764	0.039
Pair 4	c4	3.87	390	0.743	0.038
	a4	4.22	390	0.757	0.038
Pair 5	c5	3.82	390	0.772	0.039
	a5	4.22	390	0.775	0.039
Pair 6	c6	4.01	390	0.808	0.041
	a6	4.43	390	0.671	0.034
Pair 7	c7	4.14	390	0.689	0.035
	a7	4.35	390	0.794	0.040
Pair 8	c8	4.07	390	0.657	0.033
	a8	4.38	390	0.692	0.035
Pair 9	c9	4.10	390	0.658	0.033
	a9	4.44	390	0.654	0.033
Pair 10	c10	3.99	390	0.781	0.040
	a10	4.47	390	0.619	0.031
Pair 11	c11	3.91	390	0.846	0.043
	a11	4.43	390	0.656	0.033
Pair 12	c12	3.78	390	0.898	0.045
	a12	4.38	390	0.738	0.037
Pair 13	c13	3.74	390	0.981	0.050
	a13	4.43	390	0.672	0.034

Pair 14	c14	3.90	390	0.929	0.047
	a14	4.44	390	0.696	0.035
Pair 15	c15	4.07	390	0.673	0.034
	a15	4.47	390	0.647	0.033
Pair 16	c16	4.07	390	0.701	0.035
	a16	4.52	390	0.640	0.032
Pair 17	c17	4.12	390	0.684	0.035
	a17	4.55	390	0.642	0.033
Pair 18	c18	4.14	390	0.666	0.034
	a18	4.55	390	0.626	0.032
Pair 19	c19	3.98	390	0.834	0.042
	a19	4.53	390	0.627	0.032
Pair 20	c20	3.95	390	0.807	0.041
	a20	4.46	390	0.674	0.034
Pair 21	c21	3.73	390	0.964	0.049
	a21	4.42	390	0.729	0.037
Pair 22	c22	3.47	390	1.021	0.052
	a22	4.23	390	0.828	0.042
Pair 23	c23	3.44	390	1.001	0.051
	a23	4.30	390	0.772	0.039
Pair 24	c24	3.41	390	1.014	0.051
	a24	4.25	390	0.813	0.041

Table 4.19: Paired Sample Statistics from SPSS

To interpret the above results, we juxtapose the meaning of these statements along with their mean values in the below format –

S.No	Statement	Mean Perceptions (P)	Mean Expectations (E)
1	The hospital has modern equipment	3.92	4.26
2	The hospital looks attractive	3.80	4.24
3	The hospital medical staff wear clean and decent uniforms	4.06	4.24
4	The hospital medical materials such as pamphlets, reports, statements look attractive	3.87	4.22
5	The hospital provides health promotion, service guide and other information	3.82	4.22
6	The hospital provides timely services	4.01	4.43
7	The hospital staff get things done in the first time	4.14	4.35
8	The hospital accurately executes your	4.07	4.38

	treatment plan		
9	The hospital records your diagnosis and treatment accurately	4.10	4.44
10	The hospital staff communicate to patients about service provision	3.99	4.47
11	The hospital staff provide prompt services to patients	3.91	4.43
12	The hospital pay attention to and deal with your opinions, suggestions and complaints	3.78	4.38
13	The hospital medical staff is willing to help patients	3.74	4.43
14	The hospital medical staff are ethically good in behavior and practice	3.90	4.44
15	The hospital medical staffs are trustworthy	4.07	4.47
16	Patient feel safe in the hospital	4.07	4.52
17	The hospital staff are always courteous towards patients	4.12	4.55
18	The medical staff are knowledgeable enough	4.14	4.55
19	There are knowledgeable personnel to answer patients' questions	3.98	4.53
20	The medical staff ask you for advice on your treatment	3.95	4.46
21	The hospital gives priority to your benefits, not the benefits of medical staff	3.73	4.42
22	The hospital medical expenses are reasonable and expected	3.47	4.23
23	The cost of medical services is informed in a timely and convenient manner	3.44	4.30
24	The hospital provides detailed list of the items in the treatment charges	3.41	4.25

Table 4.20: Interpreting Paired Sample Statistics Itemwise

A quick glance through the above table reveals that for all the manifests statements, the patient's expectation of service quality (E) from private hospitals of Gurugram was higher than their perceptions of service quality (P) after they had obtained the treatment. The following table from SPSS calculates the mean difference for each manifest. The table reports the test statistic t, degree of freedoms (df) and Sig Values along with 95% Confidence Interval levels.

Paired Samples Test				
	Paired Differences		t	df	Sig. (2-tailed)

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	c1 - a1	-0.336	0.806	0.041	-0.416	-0.256	-8.225	389	0.000
Pair 2	c2 - a2	-0.433	0.975	0.049	-0.530	-0.336	-8.777	389	0.000
Pair 3	c3 - a3	-0.185	0.849	0.043	-0.269	-0.100	-4.292	389	0.000
Pair 4	c4 - a4	-0.346	0.984	0.050	-0.444	-0.248	-6.951	389	0.000
Pair 5	c5 - a5	-0.405	1.042	0.053	-0.509	-0.301	-7.682	389	0.000
Pair 6	c6 - a6	-0.421	0.977	0.049	-0.518	-0.323	-8.503	389	0.000
Pair 7	c7 - a7	-0.215	0.986	0.050	-0.314	-0.117	-4.315	389	0.000
Pair 8	c8 - a8	-0.313	0.892	0.045	-0.402	-0.224	-6.922	389	0.000
Pair 9	c9 - a9	-0.346	0.840	0.043	-0.430	-0.263	-8.141	389	0.000
Pair 10	c10 - a10	-0.477	0.892	0.045	-0.566	-0.388	-10.563	389	0.000
Pair 11	c11 - a11	-0.518	0.972	0.049	-0.615	-0.421	-10.525	389	0.000
Pair 12	c12 - a12	-0.597	1.049	0.053	-0.702	-0.493	-11.251	389	0.000
Pair 13	c13 - a13	-0.690	1.184	0.060	-0.808	-0.572	-11.503	389	0.000
Pair 14	c14 - a14	-0.546	1.112	0.056	-0.657	-0.435	-9.703	389	0.000
Pair 15	c15 - a15	-0.400	0.866	0.044	-0.486	-0.314	-9.124	389	0.000
Pair 16	c16 - a16	-0.451	0.899	0.046	-0.541	-0.362	-9.910	389	0.000
Pair 17	c17 - a17	-0.428	0.869	0.044	-0.515	-0.342	-9.736	389	0.000
Pair 18	c18 - a18	-0.415	0.831	0.042	-0.498	-0.333	-9.870	389	0.000
Pair 19	c19 - a19	-0.549	0.963	0.049	-0.645	-0.453	-11.255	389	0.000
Pair 20	c20 - a20	-0.508	0.995	0.050	-0.607	-0.409	-10.072	389	0.000
Pair 21	c21 - a21	-0.687	1.152	0.058	-0.802	-0.573	-11.785	389	0.000
Pair 22	c22 - a22	-0.759	1.144	0.058	-0.873	-0.645	-13.099	389	0.000
Pair 23	c23 - a23	-0.864	1.178	0.060	-0.981	-0.747	-14.486	389	0.000
Pair 24	c24 - a24	-0.844	1.223	0.062	-0.965	-0.722	-13.626	389	0.000

Table 4.21: Paired Sample Means with Sig. Values from SPSS

- The Sig values for all 24 manifests are 0.000 (< 0.05), therefore the Null Hypothesis of Pair Sample T-Test can be rejected, implying that the mean difference between the manifest measured to evaluate service quality before and treatment is not zero.

- There exists a difference between the mean values of service quality offered by private hospitals to patients before and after treatment and the difference is significant.

- Notably, for Pairs 22,23,24 there exists a huge mean difference (>0.7) between expectations and perceptions.

  o Through Pair 22, we find that patients do not perceive the medical expenses at the private hospitals to be reasonable.

  o Through Pair 23, we find that patients do not receive the details regarding cost of medical services provided to them as timely and conveniently as they expected.

  o Through Pair 24, we find that private hospitals in Gurugram do not provide detailed lists of items being charged in the treatment which was expected by patient.
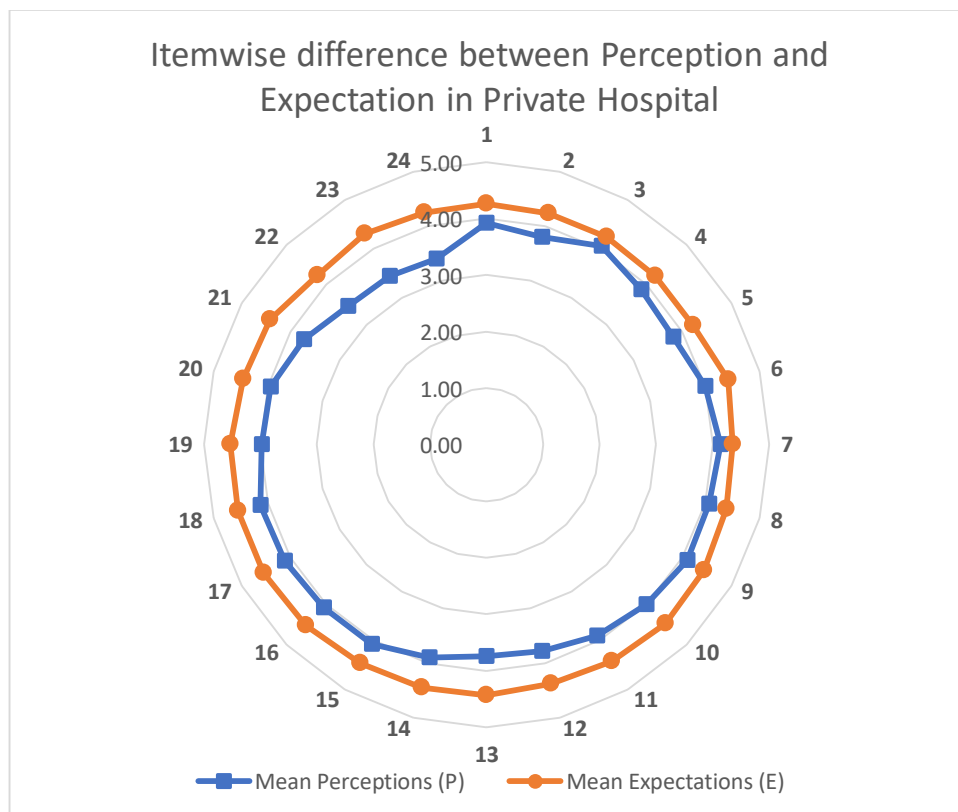

Figure 4.9: Item-wise difference between Perception and Expectation

Going further, to evaluate the mean difference at a construct level, we utilize SPSS to compute Construct Variables as per the table given below –

S.No	Service Dimensions	Calculating SERVQUAL Score	
		Expectations Questionnaire (a)	Perceptions Questionnaire (c)
1	Tangibility	(a1+a2+a3+a4+a5)/5	(c1+c2+c3+c4+c5)/5
2	Reliability	(a6+a7+a8+a9)/4	(c6+c7+c8+c9)/4
3	Responsiveness	(a10+a11+a12+a13)/4	(c10+c11+c12+c13)/4
4	Assurance	(a14+a15+a16+a17+a18)/5	(c14+c15+c16+c17+c18)/5
5	Empathy	(a19+a20+a21)/3	(c19+c20+c21)/3
6	Affordability	(a22+a23+a24)/3	(c22+c23+c24)/3

Table 4.22: Process to Calculating SERVQUAL Score

The below Paired Sample Statistics table highlights the results of Pair Sampled-T Tests based on patient's response for each of the 6 dimensions/constructs.

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Perceived_Tangibility	3.8949	390	0.51479	0.02607
	Expected_Tangibility	4.2359	390	0.59280	0.03002
Pair 2	Perceived_Reliability	4.0782	390	0.53536	0.02711
	Expected_Reliability	4.4019	390	0.60138	0.03045
Pair 3	Perceived_Responsiveness	3.8571	390	0.70089	0.03549
	Expected_Responsiveness	4.4276	390	0.57590	0.02916
Pair 4	Perceived_Assurance	4.0590	390	0.56597	0.02866
	Expected_Assurance	4.5072	390	0.54485	0.02759
Pair 5	Perceived_Empathy	3.8880	390	0.73532	0.03723
	Expected_Empathy	4.4692	390	0.61128	0.03095
Pair 6	Perceived_Affordability	3.4368	390	0.91817	0.04649
	Expected_Affordability	4.2590	390	0.73233	0.03708

Table 4.23: Paired Samples Statistics Dimension wise

The following table from SPSS calculates the mean difference for each construct. The table reports the test statistic t, degree of freedoms (df) and Sig Values along with 95% Confidence Interval levels.

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair	Perceived_Tangibility -	-	0.69793	0.0353	-0.41051	-0.27154	-9.650	389	0.000

1	Expected_Tangibility	0.34103		4					
Pair 2	Perceived_Reliability - Expected_Reliability	- 0.32372	0.74786	0.03787	-0.39817	-0.24926	-8.548	389	0.000
Pair 3	Perceived_Responsiveness - Expected_Responsiveness	- 0.57051	0.84318	0.04270	-0.65446	-0.48657	-13.362	389	0.000
Pair 4	Perceived_Assurance - Expected_Assurance	- 0.44821	0.75212	0.03809	-0.52308	-0.37333	-11.768	389	0.000
Pair 5	Perceived_Empathy - Expected_Empathy	- 0.58120	0.90799	0.04598	-0.67159	-0.49080	-12.641	389	0.000
Pair 6	Perceived_Affordability - Expected_Affordability	- 0.82222	1.07437	0.05440	-0.92918	-0.71526	-15.114	389	0.000

Table 4.24: Paired Sample Test Dimension wise

- The Sig values for all 6 constructs are 0.000 (< 0.05), therefore the Null Hypothesis of Pair Sample T-Test can be rejected, implying that the mean difference between the Construct measured to evaluate service quality before and treatment is not zero.
- There exists a difference between the mean values of service quality offered by private hospitals to patients before and after treatment and the difference lies on all dimensions of SERVQUAL scale and it is significant.

The below table ranks the 6 dimensions of MODIFIED SERVQUAL Scale in terms of their mean gaps to indicate that out of all 6 constructs, for which construct the gap is maximum –

S.No	Construct	Expected Mean Value (E)	Perceived Mean Value (P)	Mean Gap (P-E)	Rank
1	Tangibility	4.2359	3.8949	-0.34103	5
2	Reliability	4.4019	4.0782	-0.32372	6
3	Responsiveness	4.4276	3.8571	-0.57051	3
4	Assurance	4.5072	4.0590	-0.44821	4
5	Empathy	4.4692	3.8880	-0.58120	2
6	Affordability	4.2590	3.4368	-0.82222	1

Table 4.25: Ranking and Mean Gap for 6 dimensions of MODIFIED SERVQUAL Scale

- The Mean Gap is maximum for Affordability dimension followed closely by Empathy and Responsiveness.
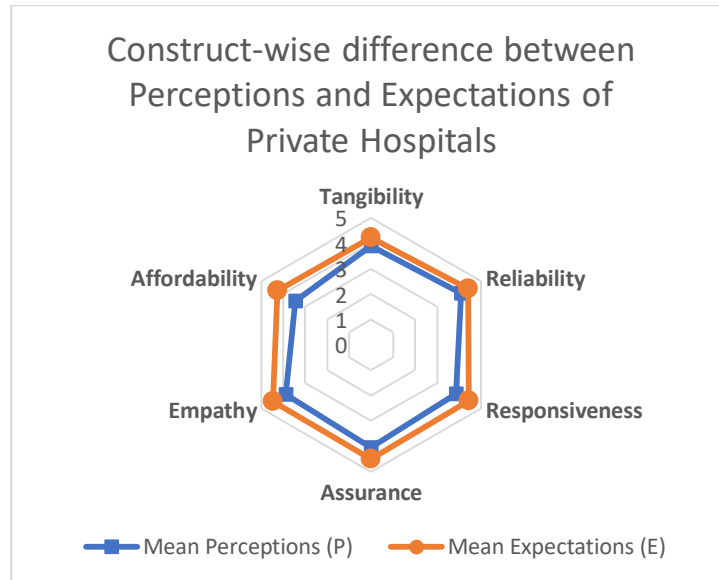- The Mean Gap is minimum for Reliability dimension of MODIIED- SERVQUAL Scale.

Figure 4.10: Dimension-wise difference between Perception and Expectation

CHAPTER 5: CONCLUSIONS AND WAY FORWARD

5.1 Conclusions:

Based on this study we were able to test our 6-hypothesis developed in section 1 of this report.

Ha: The mean difference between expectation and perception of <u>tangibility</u> construct of patients is equal to zero in total population.

Based on the result observed in Section 3.4, it was observed that there exists a significant difference between expectations and perceptions of tangibility construct of patients in the population. The mean difference was between Perceptions and Expectations was 0.34103 (negative) indicating that as far as tangibility aspect of service quality of private hospitals is concerned, these hospitals did not meet the patient's expectations. However, when compared with other dimensions of service quality used in this report, the difference between perceptions and expectations in absolute values was <u>quite less</u> for tangibility dimension (Ranked 5th)

Hb: The mean difference between expectation and perception of <u>reliability</u> construct of patients is equal to zero in total population.

Based on the result observed in Section 3.4, it was observed that there exists a significant difference between expectations and perceptions of reliability construct of patients in the population. The mean difference was between Perceptions and Expectations was 0.32372 (negative) indicating that as far as reliability aspect of service quality of private hospitals is concerned, these hospitals did not meet the patient's expectations. However, when compared with other dimensions of service quality used in this report, the difference between perceptions and expectations in absolute values was <u>lowest</u> for reliability dimension (Ranked 6th). This indicates, that as expected, patients in Gurgaon considered all private hospitals to be reliable in providing satisfactory services such that their ailments are rectified.

Hc: The mean difference between expectation and perception of <u>responsiveness</u> construct of patients is equal to zero in total population.

Based on the result observed in Section 3.4, it was observed that there exists a significant difference between expectations and perceptions of responsiveness construct of patients in the population. The mean difference was between Perceptions and Expectations was 0.57051 (negative) indicating that as far as responsiveness aspect of service quality of private hospitals is concerned, these hospitals did not meet the patient's expectations. However, when compared with other dimensions of service quality used in this report, the difference between perceptions and expectations in absolute values was in <u>medium range</u> for responsiveness dimension (Ranked 3rd)

Hd: The mean difference between expectation and perception of <u>assurance</u> construct of patients is equal to zero in total population.

Based on the result observed in Section 3.4, it was observed that there exists a significant difference between expectations and perceptions of assurance construct of patients in the population. The mean difference was between Perceptions and Expectations was 0.44821 (negative) indicating that as far as assurance aspect of service quality of private hospitals is concerned, these hospitals did not meet the patient's expectations. However, when compared with other dimensions of service quality used in this report, the difference between perceptions and expectations in absolute values was in <u>medium range</u> for assurance dimension (Ranked 4th)

He: The mean difference between expectation and perception of <u>empathy</u> construct of patients is equal to zero in total population.

Based on the result observed in Section 3.4, it was observed that there exists a significant difference between expectations and perceptions of empathy construct of patients in the population. The mean difference was between Perceptions and Expectations was 0.58120 (negative) indicating that as far as empathy aspect of service quality of private hospitals is concerned, these hospitals did not meet the patient's expectations. However, when compared with other dimensions of service quality used in this report, the

difference between perceptions and expectations in absolute values was <u>high</u> for empathy dimension (Ranked 2nd) indicating that private hospitals lack in empathizing with their patients and keep hospitals' needs/requirements superior to those of patients, which is not well appreciated.

Hf: The mean difference between expectation and perception of <u>affordability</u> construct of patients is equal to zero in total population.

Based on the result observed in Section 3.4, it was observed that there exists a significant difference between expectations and perceptions of affordability construct of patients in the population. The mean difference was between Perceptions and Expectations was 0.82222 (negative) indicating that as far as affordability aspect of service quality of private hospitals is concerned, these hospitals did not meet the patient's expectations. However, when compared with other dimensions of service quality used in this report, the difference between perceptions and expectations in absolute values was <u>highest</u> for affordability dimension (Ranked 1st).

5.2 Discussion

This primary study was covered evaluating the patient satisfaction for 11 private hospitals in Gurgaon, Haryana. Based on the demographics of a Millennium City like Gurgaon, it was expected that patients will be satisfied with the service quality offered by these private hospitals across the city.

However, as revealed in previous section, private hospitals of Gurgaon are unable to satisfy patients on not even one of the 6 dimensions considered through the MODIFIED SERVQUAL scale.

The private hospitals lacked the highest on Affordability dimension indicating that patients do not find the expense incurred for their treatment in-line with their expectations, which is quite disturbing considering their high disposable income and lifestyles. Infact, a close look at media reports of 2017- 2018 indicate large number of cases where patients have alleged over-charging by private hospitals. A few cases are –

1. Paras Hospital charging exorbitant fee for head and spine injuries from a Hisar patient (Jan 04,2018) [https://www.ndtv.com/gurgaon-news/family-alleges-negligence-overcharging-by-gurgaon-hospital-1795569]

2. Fortis Memorial Research Institute charging 15 Lakhs for treatment of Dengue (Nov 21, 2017) [https://scroll.in/latest/858624/government-to-investigate-hospital-that-allegedly-charged-over-rs-15-lakh-to-treat-child-with-dengue]

3. 11 Horrific cases of duping patients by private hospitals (Jun 21, 2018) [https://www.indiatimes.com/trending/human-interest/11-horrific-cases-where-hospitals-cheated-patients-for-money-347879.html]

When patients are not satisfied, such cases come to fore and significantly deteriorate the brand reputation of the private hospitals. Private Hospitals must understand that by not adhering to regulations, operating in a non-transparent manner affects customer's trust in their brands and legal proceedings always bring negative word-of mouth. With the complaints being fought in legal battles, it makes the Government to step in and bring some regulations. That's exactly what the Haryana government did as highlighted in the following articles-

1. Haryana Govt to enforce law capping treatment costs at private hospitals (April 2018) [https://timesofindia.indiatimes.com/city/gurgaon/haryana-set-to-enforce-law-capping-treatment-costs-at-private-hospitals/articleshow/63754069.cms]

The following are some of the government policy proposals –

Figure 5.1: Proposed rules for Quality Healthcare

Secondly, private hospitals lacked on the empathy dimension Service Quality. This also correlates to the money-minded and crooked nature of operations at these hospitals where the priorities of the hospitals and medical staff are given preference as compared to the patients. When the doctors do not engage with patients, do not consult with patients regarding their progress, their past medical history etc, they would be unable to solve any of the patient's queries. Private Hospitals must understand that apart from maintaining a clean environment as visible and appreciated by patients with the Tangibility dimension, it is also important to maintain a clean conscience and make the patient feel more comfortable by inculcating some personal touch that can make the patient feel secured anf trust the private hospitals more.

5.3 Suggestions for Future Research

This study is a cross-sectional study for Private Hospitals in Gurgaon only. The study can be further extended –

a) Geographically, to include private hospitals in Delhi-NCR region including Faridabad, Ghaziabad and Noida thereby comparing and benchmarking customer satisfaction across the cities

b) Coverage wise, by including public hospitals in Gurgaon thereby comparing and contrasting customer satisfaction of patients in government services as well as private services.

c) Objective wise, by inculcating dimensions other than affordability in the SERVQUAL scale. While, we attempted to modify the SERVQUAL scale to include aspects of affordability, Literature Review highlights a large number of other dimensions that can be used to conduct the study.

d) Research methodology wise, by considering other scales such as the Pai & Chary scale and then comparing sensitivity of various scales to measure Customer Satisfaction in delivering quality service.

5.4 Limitations

The following are the limitations of this study –

a) This research is conducted in a limited geographic area of Gurugram, Haryana, i.e. it is a cross-sectional study whereas for sake of completeness a longitudinal study must be conducted.

b) For our convenience, the questionnaire included questions of both expectation and perception. In future, the expectation and perception sections should be separated and administered separately, although this may create difficulties contacting respondents just before their treatment and just before they are discharged from hospital.

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Questionnaire

1. Gender :　　　　Male　　　Female
2. Age :　　　　18-30 years　　31-40 years　　41-50 years　　51-60 years　Above 61 years
3. Education level:　　Junior and below　　High school　　Undergraduate　　Postgraduate
4. Average income per month :　Below 40000/-　　40000/- to 60000/-　　60000/- to 80000/-
80000/-- to 100000/-　Above 100000/-
5. Department of treatment : Internal Medicine　　Surgery　　Gynaecology & Obstetrics
Paediatrics Gastroentrology　　Ophthalmology　　Image inspection section　Else
6. Are you aware of the disease you are suffering?　Yes　No
7. Are you aware of the treatment of the disease?　Yes　No
8. Are you satisfied with the medical treatment? Very-Satisfied　Satisfied　General
Dissatisfied Very-Dissatisfied

Please tick "√" based on Expectation of medical service and Perception of medical service

Section A: Patients' Expectations (Before being treated)

Survey content	Expectations				
	Not High	Not Too High	General	Relatively High	High
1 The hospital has modern equipment	1	2	3	4	5
2 The hospital looks attractive	1	2	3	4	5
3 The hospital medical staff wear clean and decent uniforms	1	2	3	4	5
4 The hospital medical materials such as pamphlets, reports, statements look attractive	1	2	3	4	5
5 The hospital provides health promotion, service guide and other information	1	2	3	4	5
6 The hospital provides timely services	1	2	3	4	5
7 The hospital staff get things done in the first time	1	2	3	4	5
8 The hospital accurately executes your treatment plan	1	2	3	4	5
9 The hospital records your diagnosis and treatment accurately	1	2	3	4	5
10 The hospital staff communicate to patients about service provision	1	2	3	4	5
11 The hospital staff provide prompt services to patients	1	2	3	4	5
12 The hospital pay attention to and deal with your opinions, suggestions and complaints	1	2	3	4	5
13 The hospital medical staff is willing to help patients	1	2	3	4	5
14 The hospital medical staff are ethically good in behavior and practice	1	2	3	4	5

15 The hospital medical staffs are trustworthy	1	2	3	4	5
16 Patient feel safe in the hospital	1	2	3	4	5
17 The hospital staff are always courteous towards patients	1	2	3	4	5
18 The medical staff are knowledgeable enough	1	2	3	4	5
19 There are knowledgeable personnel to answer patients' questions	1	2	3	4	5
20 The medical staff ask you for advice on your treatment	1	2	3	4	5
21 The hospital gives priority to your benefits, not the benefits of medical staff	1	2	3	4	5
22 The hospital medical expenses are reasonable and expected	1	2	3	4	5
23 The cost of medical services is informed in a timely and convenient manner	1	2	3	4	5
24 The hospital provides detailed list of the items in the treatment charges	1	2	3	4	5

Section B: Patients' Perceptions (After being treated)

Survey content	Perceptions				
	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
1 The hospital has modern equipment	1	2	3	4	5
2 The hospital looks attractive	1	2	3	4	5
3 The hospital medical staff wear clean and decent uniforms	1	2	3	4	5
4 The hospital medical materials such as pamphlets, reports, statements look attractive	1	2	3	4	5
5 The hospital provides health promotion, service guide and other information	1	2	3	4	5
6 The hospital provides timely services	1	2	3	4	5
7 The hospital staff get things done in the first time	1	2	3	4	5
8 The hospital accurately executes your treatment plan	1	2	3	4	5
9 The hospital records your diagnosis and treatment accurately	1	2	3	4	5
10 The hospital staff communicate to patients about service provision	1	2	3	4	5
11 The hospital staff provide prompt services to patients	1	2	3	4	5
12 The hospital pay attention to and deal with your opinions, suggestions and complaints	1	2	3	4	5
13 The hospital medical staff is willing to help	1	2	3	4	5

patients					
14 The hospital medical staff are ethically good in behavior and practice	1	2	3	4	5
15 The hospital medical staffs are trustworthy	1	2	3	4	5
16 Patient feel safe in the hospital	1	2	3	4	5
17 The hospital staff are always courteous towards patients	1	2	3	4	5
18 The medical staff are knowledgeable enough	1	2	3	4	5
19 There are knowledgeable personnel to answer patients' questions	1	2	3	4	5
20 The medical staff ask you for advice on your treatment	1	2	3	4	5
21 The hospital gives priority to your benefits, not the benefits of medical staff	1	2	3	4	5
22 The hospital medical expenses are reasonable and expected	1	2	3	4	5
23 The cost of medical services is informed in a timely and convenient manner	1	2	3	4	5
24 The hospital provides detailed list of the items in the treatment charges	1	2	3	4	5

Date:

Appendix: Photographs

Raman Sharma, Max Hospital,Typhoid

Ankita Prasad, Fortis Memorial, Gynaecology Department