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INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

SCOPE FOR FURTHER RESEARCH

ACKNOWLEDGMENTS

REFERENCES

APPENDIX/ANNEXURE

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CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, KurukshetraUniversity, Kurukshetra.

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- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

INVESTIGATING SERVICE QUALITY DIMENSIONS THROUGH EXPLORATORY FACTOR ANALYSIS IN A HEALTHCARE SETTING

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ABSTRACT

In today's highly competitive healthcare environment, hospitals increasingly realise the need to focus on service quality for gaining a sustainable advantage over competitors. Patients' decision to patronize one and not the other is based on quality services offered to him. However, quality does not improve unless it is measured. The most widely accepted research instrument to measure quality services is the SERVQUAL instrument. Since the SERVQUAL instrument was developed outside the domain of healthcare and has limited examination in the healthcare literature, present study, therefore, is aimed to develop a comprehensive measure of patient evaluation of healthcare service quality. The study is based on a sample of 520 patients of four major hospitals in Jammu and Kashmir State and Union Territory of Chandigarh. The responses have been integrated into important factors by applying factor analysis to validate a domain specific measure of service quality. Thus, a new service quality instrument applicable to healthcare organisations called HEALQUAL emerged from the study.

KEYWORDS
service quality dimensions, healthcare.

BACKGROUND

Service quality has become an important research topic in view of its significant relationship to costs (Crosby, 1979), profitability (Bhat and Joo, 2005; Buzzell and Gale, 1987; Rust and Zahorik, 1993; Zahorik and Rust, 1992), customer satisfaction (Bolton and Drew, 1991; Boulding et al., 1993; Ostwald et.al., 1998; Parasuraman et.al., 1988), customer retention Reichheld and Smith, 1987; 1990), employees retention (Bhat and Rainayee, 2007; Krishna and Mummalaneni, 1993) and service guarantee (Kandampully and Butler, 2001). Satisfied customers, through positive word-of-mouth communication, promote the company's products/services to others resulting gradual expansion in customer base. The benefit of this form of promotion is the high degree of credibility of the information transmitted. Further, satisfied customers are likely to be loyal customers providing repeat businesses to the company. Service quality has become so important that some businesses, not only need high levels of service quality for success, but in some cases, need it for survival (Buzzel and Gayle, 1987; Howcroft, 1991; Rust, et. al., 1995). Improved service quality also cuts costs because companies have fewer customers to replace, less corrective work to do, fewer inquires and complaints to handle, and less employee turnover and dissatisfaction to deal with (Devlin and Dong, 1996). The cost of poor quality, on the other hand, communicates lack of responsiveness to the customer, dissatisfied customers, complaints and adverse word-of-mouth communications and dissatisfied employees (Crosby 1979; Goodman et al., 1986).

REVIEW OF LITERATURE

Service Quality: Concept

Despite the significance of service quality for corporate success, there are no clear cut definitions of quality for setting quality standards and measuring subsequently quality delivered and received. Most of the suggested definitions focus on meeting customer needs and requirements. For example, a popular definition of service quality proposed by Berry et al., (1988) is "conformance to customer specifications" - that is, it is the customer's definition of quality that matters, not that of management. Evens and Lindsay (1999) proposed the view that customer satisfaction results from the provision of goods and services that meet or exceed customer needs or "providing the customer with what he wants, when he wants it, and at acceptable cost, within the operating constraints of the business" (Lewis 1991) or "providing a better service than the customer expects" (Lewis 1988). Gronroos (1984) perceived service quality as a result of what consumers receive (technical quality) and how they receive it (functional quality). Technical quality in health care is defined primarily on the basis of the technical accuracy of the diagnosis and procedures. Functional quality, in contrast, relates to the manner of delivery of health-care services. Berry (1980) along with Booms and Bitner (1981) argue that, due to intangible nature of services, customer use elements associated with the physical environment when evaluating service quality. Managing the evidence and using the environmental psychology are often seen as important marketing tools. Levitt (1981) proposes that customers use appearances to make judgements about realities, and less tangible a product the more powerful is the effect of packaging while judging that product. Parasuraman et al. (1985) viewed quality as "the degree and direction of discrepancy between customers' service perception and expectations". Previous researches on service quality support this notion that perceived service quality stems from customers' comparison of what they wish to receive from firms and what they perceive actual service performance to be – which are formed on the basis of previous experience with a company, its competitors, and marketing mix inputs (Gronroos, 1982; Lehtinen and Lehtinen, 1982; Parasuraman et.al., 1985, 1988; Smith, 1987).

To sum up, healthcare services being high in credence attributes cannot be assessed well by their patients. In other words, it means that patients do not possess the medical knowledge sufficient to evaluate technical quality of medical services accurately, functional quality, therefore, becomes the primary determinant of patient's perceptions of quality (Donabedian, 1980, 1982). There is a growing evidence to suggest that this perceived quality is the single most important variable influencing consumer's perceptions of value that affects their future purchase intensions (Bolton and Drew, 1988; Zeithaml, 1998).

Service Quality: Measurement

As the understanding of service quality grew, the measurement scale that became most popular was the SERQUAL instrument developed by Parsuraman, et.al, (1985; 1988). The instrument consists of five essential service quality dimensions, namely tangibility (appearance of physical elements), reliability (ability to perform the promised service dependably and accurately), responsiveness (promptness and helpfulness), assurance (courtesy, credibility and competence) and empathy (easy access, good communications and customer understanding). The basis for identifying the five components was a factor analysis of the twenty-two-item scale developed from focus groups and from the specific industry applications undertaken by the authors (see Parasuraman, et.al. 1985, 1988; and Zeithaml, et.al. 1990 for a comprehensive review). Though the veracity of conceptualizing the SERVQUAL scale has been questioned (Babakus and Boller 1992; Babakus and Mangold, 1990; Brown, et. al., 1993; Carman, 1990; Cronin and Taylor, 1992; Dabholkar et. al., 1996), the validity of the 22 individual performance scale items that make up the SERVQUAL scale appears to be well supported both by the procedures used to develop the items and by their subsequent use as

reported in some most cited studies (Berry and Parasuraman, 1997; Brown and Swartz, 1989; Fick and Ritchie, 1991; Lewis, 1987,1991; Saleh and Ryan, 1991; Young et.al., 1994; Zeithaml, et al., 1990; 1992; 1993; 1996).

Many researchers have recommended SERVQUAL application with some modification before it can be used by different firms in different industries. Babakus and Boller (1992), for example, argue that the five-dimension factor structure of SERVQUAL is unstable across various sectors of the economy. In fact, they found that as few as two dimensions emerge, while Carman (1990) concluded that as many as eight dimensions exist. With these discrepancies across industries, several researchers have tailored the SERVQUAL instrument to meet their specific company's and/or industry's situation, such as banking (Blanchard and Galloway, 1994; Howcroft, 1993; Lewis, 1991), car retailing (Carman, 1990), healthcare (Brown and Swartz, 1989), hospitality (Saleh and Ryan, 1991) and travel and tourism (Fick and Ritchie, 1991).

OBJECTIVES OF THE STUDY

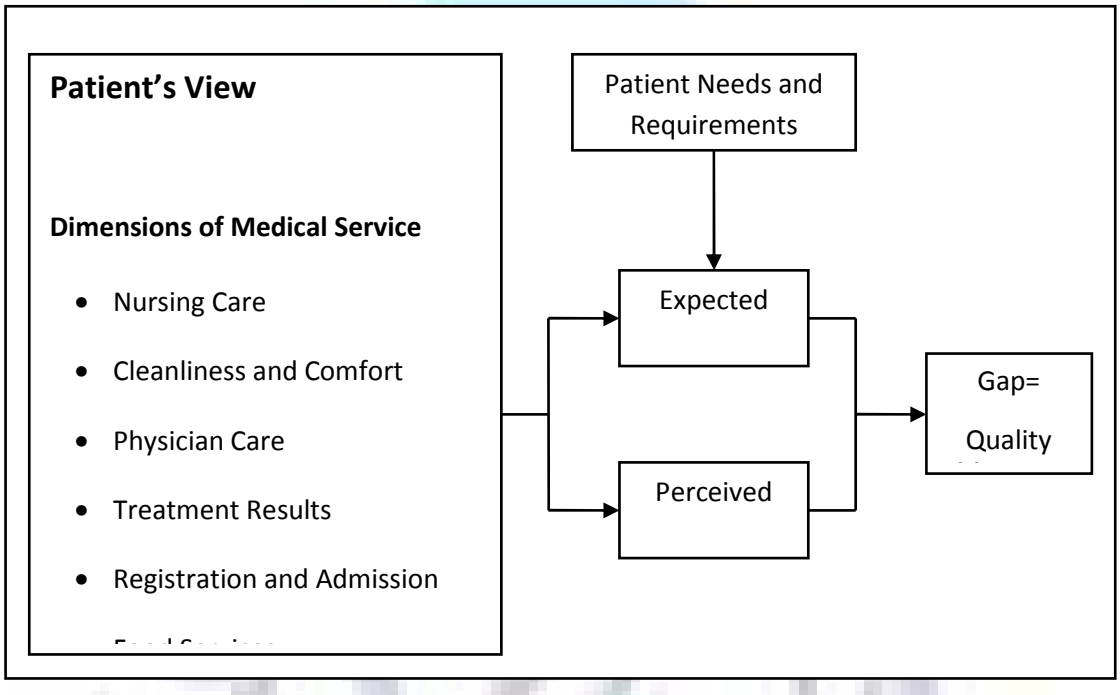
Since the SERVQUAL instrument was developed outside the domain of healthcare and has limited examination in the healthcare literature, there is a need to develop a comprehensive measure of patient evaluation of healthcare service quality. Naturally, hospital administrators would prefer specific questions about the quality of various aspects of their services to determine their own relative performances. The more specific the questions are to the administrator's own contextual circumstances, the better he/she will be able to use the information. In summary, the existing instruments for measuring service quality lack construct validity and suffer from inapplicability to the hospital setting. Given that administrators prefer and can make better use of domain specific measures, development of new measure for a complex, multifaceted construct like service quality in the hospital setting becomes imperative.

GAP MODEL

Customers judge service quality relative to what they want. They view a firm's service quality by comparing their perceptions of service experiences with their expectations of what the service performance should be. A service quality gap results when service perceptions fall short of expectations (see Figure 1). Defining quality in this way is more discriminating than is the traditional concept of satisfaction (Susan and Dong, 1994). The research findings of Berry and Parasuraman (1997), Brown and Swartz (1989), Gronroos (1982), Lehtinen and Lehtinen (1991), Lewis (1987, 1991), Saleh and Ryan (1991), Smith et. al., (1987) and the extensive focus group interviews conducted by Parasuraman et.el., (1985) unambiguously support the notion that service quality, as perceived by consumers, stems from a comparison of what they feel service firms should offer (expectations) with their perceptions of what they actually offer (performance). Service quality, therefore, is the degree and direction of the discrepancy between consumer's perceptions and expectations.

The Gap Theory of Service Quality, developed by the marketing research team of Parasuraman et. al., (1985), was, therefore, chosen as an ideal concept for studying quality of medical services in hospitals.

FIGURE 1: PROPOSED SERVICE QUALITY MODEL FOR HOSPITAL SERVICES



RESEARCH METHODS

Sample Profile

The present study has been carried out in the Jammu and Kashmir State and the Union Territory of Chandigarh. However, the study was confined to urban areas only keeping in view the concentration of hospitals in these areas, which is relatively high, as well as the paucity of time and financial resources of the researchers. The study is further limited to four major hospitals, namely Shri Maharaja Hari Singh Hospital (SMHS) in Srinagar, Shri Maharaja Gulab Singh Hospital (SMGS) in Jammu, Shri Achariya Chandra Medical College and Hospital (SACMH) in Jammu and FORTIS in Chandigarh. These Hospitals have been purposely selected for the present study keeping in view that they are the largest teaching hospitals in respective states. Also in terms of employee and bed strength, these hospitals stand at the top.

The survey was conducted over a period of three months in August, 2006. The size of the sample consisted of five hundred twenty respondents comprising of two hundred eighty from public sector hospitals (54%) and two hundred forty from private hospitals (46%). The data was collected in a period of three months by spending 3-4 hours a day and investigators took every care that the patients already contacted should not be repeated. The questionnaires were personally distributed and collected. Out of five hundred seventy-six (576) distributed questionnaires, five hundred twenty (520) questionnaires were found usable, thus representing a response rate of 90.27%. In order to seek balanced opinion regarding quality of medical services, respondents bearing varied demographic characteristics such as age, income, education, gender and profession were selected from different wards (in-patient) and from different out-patient departments. Stratified random sampling for both in-patients and out-patients was followed. Before approaching a respondent, the importance of medical service for both the receiver and the service provider used to be discussed first.

The demographic make-up of respondents is given on Table 1 which clearly shows that bulk of the respondents (39%) belonged to the age group of thirty-six to fifty followed by the age group of twenty to thirty-five (35%) while as the remaining (26%) were in the age group of above fifty-one. Male respondents were 63%. Respondents who had obtained secondary level education constituted majority of respondents (42%) followed by the graduates (39%) and post-graduates (19%). Large number of respondents (40%) were in the income group of ten to twenty thousand rupees per month followed by the income group of up to ten

thousand rupees (38%) and twenty to thirty thousand (13%) and the remaining (9%) belonged to higher income group of above thirty thousand rupees per month. Occupation-wise, respondents in services had the highest participation (63%) followed by business group respondents. An equal number (50%) of respondents (in-patients and out-patients) of all the hospitals, under reference, participated in the present study.

TABLE 1: DEMOGRAPHIC PROFILE OF RESPONDENTS

Demographic Characteristics		Hospitals				Percent (%)
		SMHS	SMGS	SACMH	FORTIS	
Age in years	20—35	60	48	39	35	35
	36—50	49	60	55	39	39
	Above 51	31	32	26	46	26
	Total	**140**	**140**	**120**	**120**	**100**
Gender	Male	83	91	78	76	63
	Female	57	49	42	44	37
	Total	**140**	**140**	**120**	**120**	**100**
Level of education	Up to secondary level	53	72	62	31	42
	Graduation	49	57	48	49	39
	Post Graduation	38	11	10	40	19
	Total	**140**	**140**	**120**	**120**	**100**
Level of income per month (Rs.)	Up to 10,000	68	58	50	23	38
	10,000-20,000	56	55	47	48	40
	20,000-30,000	15	15	15	25	13
	Above 30,000	01	12	08	24	09
	Total	**140**	**140**	**120**	**120**	**100**
Profession	Business	44	59	53	36	37
	Service	96	81	67	84	63
	Total	**140**	**140**	**120**	**120**	**100**
Types of patients	In-patients	70	70	60	60	50
	Out-patients	70	70	60	60	50
	Total	**140**	**140**	**120**	**120**	**100**

Development of Questionnaire and Data Collection

The study is based on the primary data collected from the patients (both in-patients and out-patients) through a questionnaire designed and developed after consultations and discussions on the aforesaid research problem with the panel of patients, medical experts/administrators and academicians as well as after reviewing the relevant literature. The expectation questionnaire asked patients what they felt hospitals and their staff should do and provide. The same questions formed the basis of the perception questionnaire. A five-point Likert scale, ranging from strongly disagrees which scored 1 to strongly agree which scored 5, was used for this study and all questions were phrased positively. The questionnaire was piloted on twenty patients in medical wards of SMHS Hospital, Srinagar. After the elimination, addition and rephrasing of several questions, the final questionnaire was prepared consisting of forty-eight questions (Annexure 1).

The data collected from patients was analysed and purified through factor analysis with the help of 13.0 version of Statistical Package for Social Sciences (SPSS) software to identify the factors that explain the pattern of correlation within a set of observed variables and to simplify and reduce the data to identify a small number of factors that explained most of the variances observed in the much larger number of manifested variables (Foster, 2002). The study used R-mode Principal Component Analysis with a Varimax Rotation and Eigen value equal to or more than 1 (Kinnear and Taylor, 1987). Initially, the first exercise failed in providing any stable factorial framework within 25 iterations. In the first round of 2nd exercise, 7 factors were extracted with loadings equal to or above 0.50, thereby deleting 5 items within 12 iterations with 68.72% variance explained. In the 2nd and final round, 3 items with factor loadings less than 0.60 were dropped and loadings equal to or above 0.70 were retained in order to get clear factorial design. Hence, six factors with 71.13% variance explained emerged and the process of factor analysis got completed within 7 iterations (Table 2).

TABLE 2: FACTOR PROFILE OF PATIENTS

Rounds	Number of Factors	Variance Explained	Items Retained	Iterations	No. of items Deleted	Extent of factor Loadings of the Related Dimensions	KMO	Bartlett
1	7	68.72	51	12	5	Above .50	.955	13531.45
2	6	71.13	48	7	3	Above .60	.939	12733.06

The factors finally selected have been named indicating various variables/statements grouped under the given set. Thus out of 55 statements, 48 got grouped under six factors, viz., Nursing Care (14.57% VE (Variance Explained), Cleanliness and Comfort (13.44 % VE), Physician Care (13.23% VE), Treatment Results (11.19% VE), Registration and Admission (9.40% VE) and Food Services (9.29% VE) [Table 3]. The values obtained in each round to measure KMO sampling proved meritorious (Stewart, 1981) as they fall in the group ranging from 0.955 to 0.939. The reliability of the scale was tested by using Cronbach's alpha. The present generated scale achieved the score of 0.960 which is highly acceptable reliability coefficient (Nannaly, 1978). The Cronbach's alpha was also applied to each factor/dimension. All the six factors/dimensions scored more than the suggested cut-off value of 0.70, revealing an acceptable level of reliability. This new research instrument, to measure service quality in hospitals, has been named as **HEALQUAL**.

TABLE 3: SUMMARY OF RESULTS FROM SCALE PURIFICATION: MEAN EXPECTATION, MEAN PERCEPTION, MEAN QUALITY GAP SCORES, FACTOR LOADINGS, VARIANCE EXPLAINED AND CRONBACH ALPHA VALUES

Factor	Dimensions of Medical Service	Mean Expectation Score	Mean Perception Score	Mean Quality Gap Score	Factor Loadings	% Variance Explained	Cronbach's Alpha
	Nursing Care						
	1. Sympathy and politeness of nurses	4.16	4.05	-0.11	0.751		
	2. Promptness of nurses	4.10	3.85	-0.25	0.786		
	3. Intelligence of nurses	4.05	3.83	-0.22	0.776		
	4. Interaction with patients	4.09	3.83	-0.26	0.767		
1	5. Supportive and helpful nurses	3.97	3.78	-0.19	0.784	**14.572**	**0.964**
	6. Quick response from nurses	4.22	3.92	-0.30	0.787		
	7. Confident and trustworthy nurses	4.03	3.9	-0.13	0.791		
	8. Nurses treat patients with courtesy and respect	4.13	4.04	-0.09	0.800		
	9. Nurses respond to quarries from patients	4.16	4.02	-0.14	0.705		
	Total	**4.10**	**3.91**	**-0.18**			
	Cleanliness and Comfort						
	10. Neat and clean corridors	3.70	4.09	0.39	0.753		
	11. Bathrooms and toilets are clean and functioning	3.57	3.75	0.18	0.787		
	12. Neat and clean waiting rooms	3.63	4.05	0.42	0.864		
	13. Fresh and clean garments and curtains	3.65	3.95	0.30	0.786		
2	14. Clean drinking water area	3.57	3.74	0.17	0.775	**13.442**	**0.954**
	15. Ventilation of wards	3.77	4.29	0.52	0.768		
	16. Bedding etc. is regularly changed	3.67	4.14	0.47	0.769		
	17. Floors are regularly cleaned	3.62	4.26	0.64	0.790		
	Total	**3.64**	**4.03**	**0.38**			
	Physician Care						
	18. Sympathy and politeness of doctors	4.25	4.35	0.10	0.733		
	19. Promptness of doctors	4.25	4.04	-0.21	0.705		
	20. Intelligent doctors	4.37	4.28	-0.09	0.742		
	21. Supportive and helpful doctors	4.17	3.92	-0.25	0.708		
3	22. Doctors instil confidence in patients	4.18	4.03	-0.15	0.719	**13.236**	**0.929**
	23. Doctors explain reason/s for test/s	4.20	3.92	-0.28	0.731		
	24. Enough time is spent by doctors on treatment and care	4.35	4.09	-0.26	0.764		
	25. Doctors answer to quarries from patients	4.37	4.27	-0.10	0.728		
	26. Confident and trustworthy doctors	4.32	4.20	-0.12	0.765		
	Total	**4.27**	**4.12**	**-0.15**			
	Treatment Results						
	27. Improvement in conditions after consulting the doctors	3.98	3.72	-0.26	0.724		
	28. Medicines are always adequately available	3.71	3.95	0.24	0.759		
	29. Medical test facilities adequately available	4.55	4.63	0.08	0.782		
	30. Result of tests comes quickly	4.41	4.02	-0.39	0.855		
4.	31. Blood bank services	4.43	4.21	-0.22	0.803	**11.197**	**0.925**
	32. Procedure of treatment	4.22	3.83	-0.39	0.827		
	33. Method of explaining result of tests	4.10	3.75	-0.35	0.799		
	34. Attention from nurses regarding drips and wound dressing	4.30	4.06	-0.24	0.773		
	35. Information about health progress given	4.22	3.76	-0.46	0.709		
	36. Politely treated	4.26	4.13	-0.13	0.842		
	Total	**4.21**	**4.00**	**-0.21**			
	Registration and Admission						
	37. Behaviour of gatekeepers	3.37	3.48	0.11	0.790		
	38. Employees at registration counter are polite and helpful	3.92	3.88	-0.04	0.873		
5	39. Attendants act honestly	3.75	3.62	-0.13	0.712	**9.400**	**0.931**
	40. Employees providing admission tickets act honestly	3.85	3.85	0.00	0.716		
	41. Overall procedure of registration	3.93	3.80	-0.13	0.734		
	42. Waiting time to be attended	3.96	3.71	-0.25	0.738		
	Total	**3.79**	**3.72**	**-0.07**			
	Food services						
	43. Meal delivery quite in time	3.79	4.49	0.70	0.789		
	44. Taste of food	3.71	4.19	0.48	0.831		
6.	45. Temperature of food	3.82	4.37	0.55	0.855	**9.290**	**0.913**
	46. Range and appeal of menus	3.46	3.83	0.37	0.742		
	47. Behaviour of staff serving food	3.67	4.12	0.45	0.763		
	48. Overall food service	3.71	4.9	1.19	0.864		
	Total	**3.69**	**4.31**	**0.62**			
Total		**3.95**	**4.01**	**0.06**		**71.136**	**0.960**

KMO AND BARTLETT's TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.939
Bartlett's Test of Sphericity (Approx. Chi—Square)	12773.06*

** Significance at 1% level*

ANALYSIS OF FINDINGS

The SPSS for Windows computer package was used to analyse the data. The mean scores for the forty-eight expectation and perception statements are also given in Table 3 as are the mean service quality gap scores between the corresponding statements and dimensions, which is a good indicator of any service deficiency. The service quality gaps were calculated using the SERVQUAL principle - (Service Quality = Performance-expectations).

Expectation Scores (E)

The mean scores of expectations are high, ranging from 3.37 to 4.55 (Table 4). Highest number of highest expectation statements are in Physician Care dimension (eight statements), the second highest in Treatment Result (seven statements) followed by Nursing Care (one statement). However, highest expectation mean scores (E29, E31, E30) are in Treatment Results followed by Physician Care (E20, E25, E24, and E26) dimension. The patients' choice clearly shows that Physician Care and Treatment Results are the two critical dimensions of hospital services. The results when considered collectively imply an important message from patients to hospital mangers: be reliable, be courteous, be responsive, provide information about health progress and have adequate facilities for medical tests and blood bank services. This research finding is in line with the research findings of Chahal (2002); Jayanti (1993); Oliver (1993); Ramsaran-Fowdar (2005); Sharma and Chahal (1995; 1999); Tomes and Stephen (1995) and Ware et. al., (1983). Hence, to improve patients' perception of quality in medical services, hospital administrators should focus more on the functional aspects of service delivered, i.e, Physician Care and Treatment Results.

The data in Table 4 clearly show that Cleanliness and Comfort dimension has the highest number (eight statements) of low expectation statements followed by Food Services dimension (five statements), Registration and Admission (two statements) and Treatment Results (one statement). The lowest expectation scores on Cleanliness and Comfort statements followed by the Food Services statements brings to light that physical comforts like bathroom facilities (E11), clean drinking water (E14), cleanliness (E17; E12), ventilation (E15), bedding (E13; E16), food and food related services are relatively of less concern to patients (E46, E47, E44, E48, E43).

TABLE 4: SIXTEEN HIGHEST AND LOWEST PATIENT EXPECTATION STATEMENTS

St. No.	Highest Expectation Statements	Mean Score	St. No.	Lowest Expectation Statements	Mean Score
29	Medical test facilities adequately available	4.55	37	Behaviour of gatekeepers	3.37
31	Blood bank services	4.43	46	Range and appeal of menus	3.46
30	Result of tests comes quickly	4.41	11	Bathrooms and toilets are clean and functioning	3.57
20	Intelligent doctors	4.37	14	Clean drinking water area	3.57
25	Doctors answer to quarries from patients	4.37	17	Floors are regularly cleaned	3.62
24	Enough time is spent by doctors on treatment and care	4.35	12	Neat and clean waiting rooms	3.63
26	Confident and trustworthy doctors	4.32	13	Fresh and clean garments and curtains	3.65
34	Attention from nurses regarding drips and wound dressing	4.30	47	Behaviour of staff serving food	3.67
36	Politely treated	4.26	16	Bedding etc. is regularly changed	3.67
18	Sympathy and politeness of doctors	4.25	10	Neat and clean corridors	3.70
19	Promptness of doctors	4.25	44	Taste of food	3.71
06	Quick response from nurses	4.22	48	Overall food service	3.71
32	Procedure of treatment	4.22	28	Medicines are always adequately available	3.71
35	Information about health progress given	4.22	39	Attendants act honestly	3.75
23	Doctors explain reason/s for test/s	4.20	15	Ventilation of wards	3.77
22	Doctors instil confidence in patients	4.18	43	Meal delivery quite in time	3.79

Perception Scores (P)

The mean scores of perception statements ranged from 3.48 to 4.90 for the sample organisation. Data in Table 5 clearly show that there are five highest perception statements in Food Services followed by Physician Care (four statements), Cleanliness and Comfort (four statements) and the last Treatment Results (three statements). These responses show that hospitals, under reference, are providing satisfactory food services (P48), deliver meal quite in time (P43), maintain food temperature (P45), provide tasty food (P 44), and the staff serving food behave nicely (P47). The data also reveal that hospitals, under reference, have professional doctors (20), and possess a wide spectrum of knowledge and their attitude instils confidence in patients (P18, P25, and P26). Hospitals are clean and comfortable with good ventilation of wards (P15), clean floors and corridors (P17, P16, P10). Hospitals are also well perceived on medical test facilities (P 29) followed by availability of blood bank services (P31, P36).

Registration and admission has the highest number (five) of relatively low perception statements followed by Nursing Care and Treatment Results (four in each dimension). The lowest perception statements are in Food Services (one) followed by Cleanliness and Comfort (two). These dimensions demand more attention from hospital administrators to improve the overall quality of medical service.

TABLE 5: SIXTEEN HIGHEST AND LOWEST PATIENT PERCEPTION STATEMENTS

St. No.	Highest Perception Statements	Mean Score	St. No.	Lowest Perception Statements	Mean Score
48	Overall food service	4.9	37	Behaviour of gatekeepers	3.48
29	Medical test facilities adequately available	4.63	39	Attendants act honestly	3.62
43	Meal delivery quite in time	4.49	42	Waiting time to be attended	3.71
45	Temperature of food	4.37	27	Improvement in conditions after consulting the doctors	3.72
18	Sympathy and politeness of doctors	4.35	14	Clean drinking water area	3.74
15	Ventilation of wards	4.29	11	Bathrooms and toilets are clean and functioning	3.75
20	Intelligent doctors	4.28	33	Method of explaining result of tests	3.75
25	Doctors answer to quarries from patients	4.27	35	Information about health progress given	3.76
17	Floors are regularly cleaned	4.26	05	Supportive and helpful nurses	3.78
31	Blood bank services	4.21	41	Overall procedure of registration	3.80
26	Confident and trustworthy doctors	4.20	03	Intelligence of nurses	3.83
44	Taste of food	4.19	04	Interaction with patients	3.83
16	Bedding etc. is regularly changed	4.14	32	Procedure of treatment	3.83
36	Politely treated	4.13	46	Range and appeal of menus	3.83
47	Behaviour of staff serving food	4.12	40	Employees providing admission tickets act honestly	3.85
10	Neat and clean corridors	4.09	02	Promptness of nurses	3.85

Service Quality Gap Scores (SQ)

The data analysis of Table 6 brings to light that there are seven highest service quality gap statements in Treatment Results, four statements in each Nursing Care and Physician Care and one statement in Registration and Admission. The largest service quality gaps (perceptions/ expectations) are in Treatment Results. Patients were unhappy with information given about health progress (SQ35; SQ27), test results (SQ30), procedure of treatment (SQ32), method of explaining tests (SQ33) and attention from nurses regarding drips and wound dressing (SQ34). Service quality gaps on quick response from nurses (SQ06 and SQ02), their interaction with patients (SQ04) and their acumen (SQ03) reveal relatively poor quality services of the hospitals under reference. Patients have also reported their differences with the doctors explaining reason/s for test/s (SQ23), time devoted for treatment and care (SQ24), helpfulness and promptness of doctors (SQ21, SQ19) and long waiting time (SQ42).

Hospitals, under reference, collectively exceed the expectations of their patients on Food Services. There are relatively high positive service quality scores on overall food services (SQ48), meal delivery in time (SQ43), temperature and taste of food (SQ45; SQ44), behaviour of staff serving food (SQ 47), and range and appeal of menus (SQ46). Hospitals expectedly have to be clean and comfortable. All the eight statements on Cleanliness and Comfort dimension have scored positive which is a good visible indicator of quality. Availability of adequate medicine in hospitals (SQ28) followed by gatekeepers' response (SQ 37) have also positive service quality scores.

TABLE 6: SIXTEEN HIGHEST AND LOWEST SERVICE QUALITY GAP SCORES

St. No.	Highest Service Quality Gap Scores	Mean Score	St. No.	Lowest Service Quality Gap Scores	Mean Score
35	Information about health progress given	-0.46	37	Behaviour of gatekeepers	0.11
30	Result of tests comes quickly	-0.39	14	Clean drinking water area	0.17
32	Procedure of treatment	-0.39	11	Bathrooms and toilets are clean and functioning	0.18
33	Method of explaining result of tests	-0.35	28	Medicines are always adequately available	0.24
06	Quick response from nurses	-0.30	13	Fresh and clean garments and curtains	0.30
23	Doctors explain reason/s for test/s	-0.28	46	Range and appeal of menus	0.37
04	Interaction with patients	-0.26	10	Neat and clean corridors	0.39
24	Enough time is spent by doctors on treatment and care	-0.26	12	Neat and clean waiting rooms	0.42
27	Improvement in conditions after consulting the doctors	-0.26	47	Behaviour of staff serving food	0.45
02	Promptness of nurses	-0.25	16	Bedding etc. is regularly changed	0.47
21	Supportive and helpful doctors	-0.25	44	Taste of food	0.48
42	Waiting time to be attended	-0.25	15	Ventilation of wards	0.52
34	Attention from nurses regarding drips and wound dressing	-0.24	45	Temperature of food	0.55
03	Intelligence of nurses	-0.22	17	Floors are regularly cleaned	0.64
31	Blood bank services	-0.22	43	Meal delivery quite in time	0.70
19	Promptness of doctors	-0.21	48	Overall food service	1.19

Analysis of the results related to quality of medical services provided by the hospitals, under study, is not the objectives of this article. However, some of the findings may be of more general interest for hospital administrators. The data in Table 3 clearly demonstrate that by and large patients are satisfied with the overall quality of medical services provided by the hospitals. Hospitals are exceeding the expectations of their patients on overall quality of medical services (SQ 0.06) but are deficit in Treatment Results (-0.21), Nursing Care (-0.18), Physician Care (-0.15) and Registration and Admission (-0.07) as is quite evident from the negative service quality gap scores of respective dimensions.

CONCLUSIONS

Present study substantiated the need to develop and test a measurement scale specific to healthcare service domain. The validity and reliability tests support the instrument which has been named as **HEALQUAL**. It has six dimensions, namely, Nursing Care, Cleanliness and Comfort, Physician Care, Treatment Results, Registration and Admission and Food Services. Thus, a contribution of the present research is that it added to the large body of previous research on service quality, corroborating that SERVQUAL is not a generic measure of service quality for all industries. By using the gap model, authors have demonstrated how the instrument could help hospitals identify the service characteristics that are considered important by patients. An understanding of expectations is necessary to avoid service shortfalls. The study has clearly shown the areas in which hospitals have met or exceeded or are below the expectations of their patients. By and large, patients are happy with the overall quality of medical service provided by hospitals, however, improvements are needed in Treatment Results, Nursing Care, Physician Care and Registration and Admission. In this way, hospitals can improve their level of quality and the effectiveness of total quality management (TQM) can be monitored over time, with resources being shifted to those areas which most heavily influence patients' perceptions of service quality.

LIMITATIONS AND FUTURE RESEARCH

Though sincere efforts were made to maintain objectivity, reliability and validity of the study, yet the presence of subjectiveness could not be ruled out. A major limitation of this study is that it was conducted in the urban areas of Jammu and Kashmir State and Union Territory of Chandigarh only. Even if results coincide with other studies, future research should consider samples from hospitals of different states to better ensure that HEALQUAL is unanimously relevant. Some services like parking, transportation and entertainment have not been covered in the present study. The scope of the instrument could be broadened in future studies by including these services as they also influences patients overall quality evaluation. Future research should also investigate other measures of performance such as quality, productivity and profitability.

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ANNEXURE

ANNEXURE 1

SECTION - A

Instructions: I would like your impressions about how well this hospital provides medical services relative to your expectations. For each of the following statements, please indicate: (a) your expected medical service by marking tick (√) on one of the numbers in the expected column, and (b) your perception of medical service that truly reflects your feelings based on your experience by marking tick (√) on one of the numbers in the perception column. You may tick mark (√) any of the numbers in the middle that shows how strong your expectations/perceptions are. There is no right or wrong answers – all I am interested in, is a number that best shows your expectations and perceptions about hospital services.

DIMENTIONS OF PATIENT CARE	**Expectations**					**Perceptions**				
1. Nursing Care	Strongly Disagree	Disagree	Fair	Agree	Strongly Agree	Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
1. In this hospital the nurses are polite and sympathetic.	1	2	3	4	5	1	2	3	4	5
2. In this hospital the nurses are prompt in their services.	1	2	3	4	5	1	2	3	4	5
3. In this hospital the nurses are very intelligent.	1	2	3	4	5	1	2	3	4	5
4. In this hospital the nurses regularly interact with patients.	1	2	3	4	5	1	2	3	4	5
5. In this hospital the nurses are supportive and helpful.	1	2	3	4	5	1	2	3	4	5
6. In this hospital the nurses respond quickly when you call them.	1	2	3	4	5	1	2	3	4	5
7. In this hospital the nurses are confident and trustworthy.	1	2	3	4	5	1	2	3	4	5
8. In this hospital the nurses treat you with courtesy and respect.	1	2	3	4	5	1	2	3	4	5
9. In this hospital the nurses answer your questions/ queries in the way you could understand.	1	2	3	4	5	1	2	3	4	5

2. Cleanliness and Comfort

10. In this hospital the corridors are neat and clean.	1	2	3	4	5	1	2	3	4	5
11. In this hospital the bathrooms and toilets are clean and functioning.	1	2	3	4	5	1	2	3	4	5
12. In this hospital the waiting rooms are neat and clean.	1	2	3	4	5	1	2	3	4	5
13. In this hospital the garments and curtains are fresh and clean.	1	2	3	4	5	1	2	3	4	5
14. In this hospital the drinking water area is clean.	1	2	3	4	5	1	2	3	4	5
15. In this hospital the ventilation and temperature of wards is excellent.	1	2	3	4	5	1	2	3	4	5
16. In this hospital the bedding etc. is regularly changed.	1	2	3	4	5	1	2	3	4	5
17. In this hospital the floors are regularly cleaned.	1	2	3	4	5	1	2	3	4	5

3. Physician Care

18. In this hospital the doctors are polite and sympathetic	1	2	3	4	5	1	2	3	4	5
19. In this hospital the doctors are very prompt in their services	1	2	3	4	5	1	2	3	4	5
20. In this hospital the doctors are intelligent.	1	2	3	4	5	1	2	3	4	5
21. In this hospital the doctors are supportive and helpful.	1	2	3	4	5	1	2	3	4	5
22. In this hospital the doctors are able to instil confidence in patients.	1	2	3	4	5	1	2	3	4	5
23. In this hospital the doctors explain the reason/s for test/s.	1	2	3	4	5	1	2	3	4	5
24. In this hospital the doctors spent enough time on your care and treatment	1	2	3	4	5	1	2	3	4	5
25. In this hospital the doctors answer your questions in a way you could understand.	1	2	3	4	5	1	2	3	4	5
26. In this hospital the doctors are confident and trustworthy.	1	2	3	4	5	1	2	3	4	5

4. Treatment Results

27. In this hospital the condition improves after consulting the doctors.	1	2	3	4	5	1	2	3	4	5
28. In this hospital the medicine/s you need is/are always adequately available	1	2	3	4	5	1	2	3	4	5
29. In this hospital the medical test facilities are adequately made available to patients.	1	2	3	4	5	1	2	3	4	5
30. In this hospital the result of tests comes quickly from the laboratory.	1	2	3	4	5	1	2	3	4	5
31. In this hospital the blood bank services are excellent.	1	2	3	4	5	1	2	3	4	5
32. In this hospital the overall procedure of treatment is excellent.	1	2	3	4	5	1	2	3	4	5
33. In this hospital the method of explaining the result of tests is excellent.	1	2	3	4	5	1	2	3	4	5
34. In this hospital you get attention from nurses regarding drips and wound dressing	1	2	3	4	5	1	2	3	4	5
35. In this hospital the information about your health progress is given regularly.	1	2	3	4	5	1	2	3	4	5
36. In this hospital you were treated with politeness.	1	2	3	4	5	1	2	3	4	5

5. Registration and Admission

18. In this hospital the behaviour of gate keepers is excellent.	1	2	3	4	5	1	2	3	4	5
19. In this hospital the employees at registration counter are polite and helpful.	1	2	3	4	5	1	2	3	4	5
20. In this hospital the attendants act honestly when you are in queue.	1	2	3	4	5	1	2	3	4	5
21. In this hospital the employees providing admission and consulting tickets act honestly.	1	2	3	4	5	1	2	3	4	5
22. In this hospital the overall procedure of registration is excellent.	1	2	3	4	5	1	2	3	4	5
23. In this hospital you don not have to wait for too long to be attended to.	1	2	3	4	5	1	2	3	4	5

****6. Food Services***

24. In this hospital the meal delivery is quite in time.	1	2	3	4	5	1	2	3	4	5
25. In this hospital the taste of food is good.	1	2	3	4	5	1	2	3	4	5
26. In this hospital the temperature of food served is good.	1	2	3	4	5	1	2	3	4	5
27. In this hospital the range and appeal of the menus are good.	1	2	3	4	5	1	2	3	4	5
28. In this hospital the behaviour of staff serving food is excellent.	1	2	3	4	5	1	2	3	4	5
29. In this hospital the overall food service is excellent.	1	2	3	4	5	1	2	3	4	5

***** *This dimension is only for in-patients*

SECTION - B

PERSONAL DATA

Instructions: Please tick mark (√) the information relevant to you.

1. Age in years: (a) 20-35 (b) 36-50 (c) Above 51
2. Gender: (a) Male (b) Female
3. Education (a) Up to secondary level (b) Graduation c) Post Graduation
4. Level of Income: (a) Up to 10,000 p.m. (b) 10,000—20,000 p.m. (c) 20,000---30,000 p.m. d) Above 30,000 p.m.
5. Hospital: (a) Government / Private (b) Srinagar / Jammu / Chandigrah
6. Occupational Status: (a) Business (b) Service c) Any other…….

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With sincere regards

Thanking you profoundly

Academically yours

Sd/-

Co-ordinator

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