

The Measurement of Perceived Service Quality of Patients in the Government Districts Hospital in Eastern Uttar Pradesh

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ABSTRACT

The main aim of this study is to examine the expectation and perception towards service quality in health care delivered by government district hospitals in Eastern Uttar Pradesh and analyzes the gap between expectation and perception using the gap analysis. This study assesses overall patients' perceptions of health care services and to uncover the constructs that underlie these desire expectations to reveal the underlying benefits that patients look for. This paper focuses on identifying and evaluating services used to take on the challenges of quality improvement in health care services in government hospitals. A questionnaire consisting of 35 items was developed to measure the construct and its dimensions. The purpose of this work is to examine the performance of five alternative measures of service quality in the health care services in Eastern Uttar Pradesh. The first draft of the questionnaire was subject to a pilot testing through a focus group and an expert evaluation. The study is exploratory in nature and uses factor analysis to identify the most important factors of patients' perception with service quality of district hospitals in Eastern Uttar Pradesh.

Keywords: Health care services, District hospitals, Service quality, t-test, Exploratory factor analysis

1. Introduction

Health care services in Uttar Pradesh have made significant improvement in the last few decades. UP has a large public as well as private health care services. At present, seven medical colleges and one super specialty hospital in Lucknow are being run by the state government. Apart from government medical colleges, state has also 53 district hospitals, 13 combined hospitals, 388 community health centres, 823 block PHC's, 2817 additional PHC's apart from 20521 sub centres. However, there are large numbers of registered and non-registered medical practitioners in the state and they play an important role in providing medical service to the rural and urban populations. This study is focused on health care services and specially to assess the service quality of government hospitals in Eastern Uttar Pradesh. Hospitals serve an important function in India's healthcare system. They provide in-patient and out-patient services and also support the training of health workers and research. Indian hospitals can be broadly classified as public hospitals, private and not-for-profit hospitals. Corporate hospital chains that provide tertiary healthcare services in large towns and cities have also been established. The public healthcare system consists of healthcare facilities run by the central and state government which provide services free of cost or at subsidized rates to low income group in rural and urban areas. Patient's perception is the main indicator of quality in health care service (O'Connor, Shewchuk & Carney, 1994; Cronin & Taylor, 1992). According to some researchers, although true level of service quality can be quite low (or high) the main key is how consumers perceive the quality of service and the efficiency of the health care (Petersen, 1988). Most of the researchers on that issue believe that there is a relationship between the perception of the consumers on the quality of the services and their satisfaction (Cronin & Taylor, 1994; McAlexander, Kaldenberg &

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Koenig, 1994). However, Gronroos, (1984) describes health care services can be divided into two components: technical quality and functional quality. Technical quality refers to technical analysis, medical diagnose and procedures, while functional quality refers to the manner in which the health care service is delivered to the patients (Lam, 1997). In other words, technical quality is about what the patients get, functional quality is about how they get it. Most of the patients do not have the technical information to evaluate the medical diagnosis and technical procedures, although technical quality has high priority with patients (Ware and Snyder, 1975). Because most of patients lack the required knowledge for evaluating the technical quality of the health care services, their evaluation of quality is based on the medical care process (McIver, 1993; Newcome, 1997). Technical quality falls short of being a truly useful measure for describing how patients evaluate the quality of a medical service encounter (Bowers et al., 1994). The service quality approach, which focuses on functional quality perceived by patients, has been widely used to evaluate the health services, (Buttle, 1996; Dursun and Cerci, 2004). Few studies conducted on patient perceptions of health care services in India. Patient perceptions of public health care services are very important to know the patient satisfaction. Most of the studies have attempted to measure patient perceptions of health care quality based on service quality model, the validity and reliability of these scales are not known. Studies have also shown that public health care utilization in India is very pathetic, for this reason, patient perceptions of health services are very important part of quality measurement in public health care. These scales are questionable to the Indian context but appropriate in developed countries. The main objective of this study is to develop an instrument to assess patient perceptions of health care services for district hospitals in the state of Eastern Uttar Pradesh.

2. Literature Review

Service quality has become an important research topic in view of its significant relationship to costs (Crosby, 1979), profitability (Buzzell and Gale, 1987; Rust and Zahorik, 1993; Zahorik and Rust, 1992), customer satisfaction (Bolton and Drew 1991; Boulding *et al.*, 1993), customer retention (Reichheld and Sasser, 1990), and service guarantee (Kandampully and Butler, 2001). Service quality also affects customer satisfaction. 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. Several tools have been developed for measurement of patients’ perceptions and expectations. These tools vary in terms of definition, content, and measurement (Uzun, 2001), but the SERVQUAL instrument developed by Parasuraman, Zeithaml and Berry (1988), remains the most widely used to: 1. determine the relative importance of the five dimensions of tangibility, reliability, responsiveness, assurance, and empathy in influencing customer perceptions; and 2. track quality trends over time. Subsequently, Woodside *et al.* (1989) defined medical services quality as a gap between consumers’ expectations and the actual performance, and positively verified a model leading to satisfaction and intention to buy based upon medical services quality measurements using the SERVQUAL model. The SERVQUAL instrument has been empirically evaluated in the hospital environment, and has been shown to be a reliable and valid instrument in that setting (Babakus and Mangold, 1992). Other studies of health-care quality measurement (Canel and Fletcher, 2001; Lam, 1997; Donthu, 1991) have also used the SERVQUAL method of analysis. Woodside *et al.* (1989) classified medical services quality in a narrow sense and in a broad sense, where medical services quality in a narrow sense is performance toward medical services in a short period, while the quality in a broad sense is the long-term behaviour toward medical services provided. Consequently, they classified factors constituting medical services quality into: 1. Service provision that satisfies ostensive needs without defects, 2. Convenience of service

provision and operation process, and 3. Service provision that satisfies a patient's expectations, and argued that a multi-dimensional approach is necessary in order to measure service quality in health services organisations. John (1991) explained that medical services quality can be enhanced by promoting communication between patient and medical doctor, and referred to the concept of technical care and emotional care based upon the definition set forth by Brook and Williams (1975). Technical care implies the accuracy of diagnosis and treatment process, while emotional care, including the physical environment of the hospital, implies the behaviour of the service provider and communication between patient and medical doctor. Bopp (1990) hypothesised that medical services quality from a consumer's perspective is mostly technical quality based upon what is perceived by a patient, emphasised that patients evaluate the quality of medical services highly when better services are experienced, and positively verified this through newly developed 72 expectation/performance items. Lytle and Mokva (1992) argued that medical services quality satisfies the needs of patients, and patients evaluate service quality derived from service output, service process and physical environment. In addition, they conceptualised medical services quality in three dimensions – relationship with a medical doctor, relationship with other medical services professionals and physical environment.

3. Research Methodology

A Correlational study was conducted during the month of January, 2016 in Eastern Uttar Pradesh. The study sample was selected from among all patients who were hospitalized in district hospitals of Eastern Uttar Pradesh. Three district hospitals namely Barabanki, Raibareli and Sitapur were considered for investigation and the samples were divided among the 03 government hospitals based on proportionality to the size. Structured questionnaire was used as a survey instrument. The questionnaires were personally hand-delivered in the Hospital waiting areas and personal interview technique was used to collect the data. The response rate was 100% because the researcher clarified all the doubts at the moment. The questionnaire was developed with the help of modified SERVQUAL which was developed by Parasuraman et al. (1991). After an initial evaluation by academicians and researchers, 13 pairs of new questions were added in the modified SERVQUAL. The questionnaire was divided in four parts, items related with expectation and perception, ranking of dimensions of service quality and demographic profile. Respondents were asked to rate the 35 pairs of statements relating to service quality. Responses to all the statements in the questionnaire were measured on five-point Likert scale, ranging from 1= strongly disagree to 5= strongly agree. Demographic information such as gender, age, education level and income was also collected. The validation of survey instrument was checked through pilot testing of 100 respondents and variables were finalized after ensuring the balanced approach and objectivity of the survey. Collected data were processed in the statistical software package of SPSS-20.

Demographic profile of the patients

Demographic characteristics of respondents are presented in Table-1. Among the 900 respondents of three different government district hospitals, the percentage of male and female respondents is 56% and 44%. Out of 900 respondents, 25.00%, 18.00%, 17.00%, 19.00%, 21.00% of the respondents were below 30 years, 31-40 years, 41-50 years, 51-60 years, and above 60 years old respectively. 35.00% of respondents had qualification up to illiterate, 40.00 % were Primary and secondary intermediate level, and rest of the patients were related graduate level. While majority of the patients were urban 72.00% and rural constituted 28.00% of the total sample.

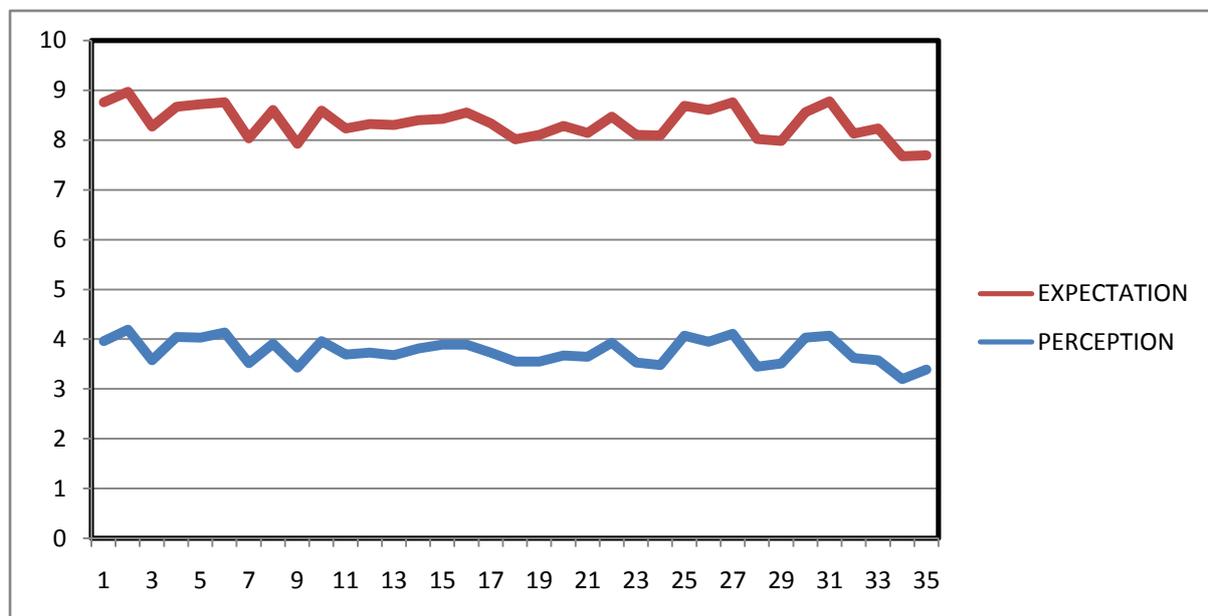
Table 1
Respondent's profile

Variables		N	%
Gender	Male	504	56.00
	Female	396	44.00
Age (Years)	≤ 30	225	25.00
	31-40	162	18.00
	41-50	153	17.00
	51-60	171	19.00
	61≥	189	21.00
Education Level	Illiterate	315	35.00
	Primary and secondary school	360	40.00
	Graduates	225	25.00
Residence	Urban	648	72.00
	Rural	252	28.00

Source: Primary data

The Perception and Expectation Gap: The next step of health care service evaluation is to collect the results of the modified SERVQUAL questionnaire, and adopt various statistical methods to analyze the data. This study will adopt a special measurement to analyze the data in the following aspects.

Figure 1
The perception and expectation gap



Source: Primary data

The service quality gaps are demonstrated in the Tables -2. This research study shows that every item has a negative value; clients' perceptions of the service are falling short of their expectations.

Table 2
Mean score (Standard deviation) for modified SERVQUAL dimensions

S.No.	Variables	Perception Mean (S.D)	Expectation Mean (S.D)	Gap (P-E)
Tangibility				
1.	Clean rooms, bathrooms and toilets	3.96(.881)	4.8(.401)	-0.84
2.	Unique dress code and neat appearance of Staff	4.19(.739)	4.78(.416)	-0.59
3.	Proper sitting and bedding arrangement for patients	3.58(1.088)	4.69(.504)	-1.11
4.	Modern looking equipment	4.04(.866)	4.63(.497)	-0.59
5.	Facility for electricity and hygienic drinking water	4.03(.772)	4.69(.465)	-0.66
6.	Medical store, diagnostic centre and a blood bank	4.13(.748)	4.63(.512)	-0.5
7.	Proper parking, a notice board and a suggestion box	3.52(1.128)	4.51(.515)	-0.99
8.	Sufficient doctors, nurses and technical experts	3.91(1.195)	4.69(.480)	-0.78
9.	Functional hygienic canteen	3.43(1.166)	4.49(.663)	-1.06
10.	Sufficient number of ambulances	3.96(.996)	4.63(.511)	-0.67
11.	Dustbins and spittoons	3.69(.998)	4.54(.526)	-0.85
12.	Sufficient supply of oxygen cylinders	3.73(1.016)	4.59(.519)	-0.86
Reliability				
13.	Consistency in providing promised services on time.	3.68(.925)	4.62(.501)	-0.94
14.	A maintained record book of patients.	3.81(.796)	4.59(.615)	-0.78
15.	fair and reasonable service charge	3.89(.853)	4.53(.552)	-0.64
16.	Upgrade treatment facility from time to time.	3.89(1.066)	4.66(.503)	-0.77
17.	The hospital ties up with other hospitals	3.73(1.090)	4.60(.579)	-0.87
18.	Explained procedure of treatment to the patient	3.55(1.097)	4.46(.662)	-0.91
Responsiveness				
19.	Willingness to help the patients.	3.55(.921)	4.55(.574)	-1
20.	Quick and simple process of admission	3.67(.795)	4.61(.504)	-0.94
21.	Less formal hospital management	3.65(1.097)	4.49(.621)	-0.84
22.	Efficient, effective and prompt discharge service	3.93(1.151)	4.54(.551)	-0.61
23.	Properly addressed queries of patient	3.53(.935)	4.57(.606)	-1.04
24.	Prompt response to the complaints of the patient	3.48(.951)	4.61(.517)	-1.13
Assurance				
25.	Well educated and knowledgeable hospital staff	4.07(1.144)	4.62(.487)	-0.55
26.	Assurance of recovery before getting discharged.	3.95(.961)	4.65(.507)	-0.7
27.	Experienced doctors	4.11(.759)	4.65(.493)	-0.54
28.	The receptionist ability to convey information accurately	3.45(.891)	4.57(.497)	-1.12
29.	The visitors should be properly treated.	3.51(1.145)	4.47(.576)	-0.96
30.	On duty employees availability	4.03(1.113)	4.53(.501)	-0.5
31.	Proper examination before writing a prescription	4.07(1.068)	4.71(.482)	-0.64
Empathy				
32.	Impartiality in the behavior towards the patients.	3.62(.881)	4.51(.515)	-0.89
33.	Operating hours convenient for all the patients.	3.58(.739)	4.65(.507)	-1.07
34.	Individual attention to the patients.	3.20(1.088)	4.47(.610)	-1.27
35.	Consideration of financial condition	3.39(.866)	4.30(.825)	-0.91
SERVQUAL totals		131.51	160.63	-29.12
SERVQUAL average		3.7574	4.5894	-0.832

Source: Primary data

The mean scores from the sample are depicted in the above table, the three columns provide summary results for the perception of patients in government district hospitals, where the gap perception and expectation is negative, this refers to perceptions of the health care services in government hospitals falling short against initial patients' expectations, and the presence of service quality gaps. The findings suggest a short fall on all the items measured.

Related sample t-tests: Related sample t-tests were also undertaken on the perception and expectation of mean items, in order to identify whether or not statistically significant service quality gaps were apparent. Findings from data presented in the below table demonstrate significant differences between district hospitals clients’ perceptions and expectations of health care service on all 35 variables.

Table 3
Paired sample t-test statistics

S. No.	Variables	t-test	P-value
Tangibility			
1.	Clean rooms, bathrooms and toilets	10.684	0.000
2.	Unique dress code and neat appearance of Staff	8.934	0.000
3.	Proper sitting and bedding arrangement for patients	10.997	0.000
4.	Modern looking equipment	7.387	0.000
5.	Facility for electricity and hygienic drinking water	8.502	0.000
6.	Medical store, diagnostic centre and a blood bank	6.383	0.000
7.	Proper parking, a notice board and a suggestion box	9.300	0.000
8.	Sufficient doctors, nurses and technical experts	7.595	0.000
9.	Functional hygienic canteen	10.722	0.000
10.	Sufficient number of ambulances	7.653	0.000
11.	Dustbins and spittoons	8.665	0.000
12.	Sufficient supply of oxygen cylinders	9.223	0.000
Reliability			
13.	Consistency in providing promised services on time.	10.077	0.000
14.	A maintained record book of patients.	8.898	0.000
15.	fair and reasonable service charge	7.814	0.000
16.	Upgrade treatment facility from time to time.	9.211	0.000
17.	The hospital ties up with other hospitals	8.829	0.000
18.	Explained procedure of treatment to the patient	8.561	0.000
Responsiveness			
19.	Willingness to help the patients.	9.576	0.000
20.	Quick and simple process of admission	10.461	0.000
21.	Less formal hospital management	9.294	0.000
22.	Efficient, effective and prompt discharge service	7.600	0.000
23.	Properly addressed queries of patient	10.086	0.000
24.	Prompt response to the complaints of the patient	11.392	0.000
Assurance			
25.	Well educated and knowledgeable hospital staff	6.478	0.000
26.	Assurance of recovery before getting discharged.	8.197	0.000
27.	Experienced doctors	7.046	0.000
28.	The receptionist ability to convey information accurately	11.044	0.000
29.	The visitors should be properly treated.	10.258	0.000
30.	On duty employees availability	6.197	0.000
31.	Proper examination before writing a prescription	7.798	0.000
Empathy			
32.	Impartiality in the behavior towards the patients.	8.204	0.000
33.	Operating hours convenient for all the patients.	10.439	0.000
34.	Individual attention to the patients.	11.221	0.000
35.	Consideration of financial condition	8.665	0.000

Source: Primary data

However, for all the variables, there is a statistical significance of a 0.05, which illustrates a statistically significant gap between the patients’ perceptions and expectations of health care service at the 95% confidence level. These represent service quality gaps that the government hospitals should take the appropriate action to improve the condition of hospitals.

4. Factor Analysis

Principal component analysis suggested four important factors. This research paper uses exploratory factor analysis in order to identify the various determinant factors of service quality in district hospitals in Eastern Uttar Pradesh. Principal Component analysis was employed for extracting factors and orthogonal rotation with Varimax was applied. As latent root criterion was used for extraction of perception of patients towards service quality in government hospitals, only the factors having latent roots or eigen value greater than one were considered significant; all other factors with latent roots less than one were considered insignificant and disregarded. Initially we used 35 items in this study; only 17 items were extracted through the exploratory factor analysis. The extracted influencing factors of service quality along with their eigen value are shown in the Table 4.

Table 4
Varimax rotation matrix

S. No.	Variables	Factor-1	Factor-2	Factor-3	Factor-4	Communalities
Physical aspects						
1.	Unique dress code and neat appearance of Staff	.709				.661
2.	Proper sitting and bedding arrangement	.800				.728
3.	Medical store, diagnostic centre , blood bank	.715				.691
4.	Sufficient number of ambulances	.730				.773
5.	Dustbins and spittoons	.745				.641
Assured Reliability						
6.	Providing promised services on time.		.847			.597
7.	The hospital ties up with other hospitals		.729			.616
8.	Properly addressed queries of patient		.891			.659
9.	Prompt response to the complaints of the patient		.775			.752
10.	Assurance of recovery before discharged		.738			.679
11.	Experienced doctors		.751			.644
Easy Formalities						
12.	Quick and simple process of admission			.797		.587
13.	Less formal hospital management			.816		.542
14.	Efficient, effective and prompt discharge			.768		.623
Personal impartial Attention						
15.	Impartiality in the behavior towards the patients				.780	.546
16.	Operating hours convenient for all the patients				.756	.612
17.	Individual attention to the patients				.895	.643
Eigen value		12.61	2.848	1.701	1.489	
Variance (%)		4				
Cumulative variance (%)		36.64	12.9	8.86	4.25	
Reliability Alpha (%)			9			
Number of items (total =17)		36.64	49.6	58.49	62.75	
			3			
		.831	.749	.762	.765	
		05	06	03	03	

Source: Primary data

The main objective of this study was to provide a conceptual framework of health care service quality model to understand the patients' expectations and perceptions in government district hospitals. Modified SERVQUAL questionnaire was used in this study, but results

from the factor analysis did not confirm the structure suggested by the Parasuraman et al. and four dimensions emerged as a Physical Aspects, Assured Reliability, Easy Formalities and Personal Impartial Attention. The EFA results specified four dimensions of the health care service quality as follows:

Factor-1 (Physical Aspects): This factor included 5 items relating to the physical aspects, which explained 36.64% of the total variance and was labelled as “Physical aspects.”

Factor-2 (Assured Reliability): This factor includes both Assurance and Reliability’s 6 items, which explained 12.99% of the total variance and was named “Assured Reliability.”

Factor -3 (Easy Formalities): It includes 3 items, which explained 8.86% of total variance and was named “Easy Formalities”

Factor-4(Personal Impartial Attention): This factor includes 4 items relating to Personal care, which explained 4.25% of the total variance and was named “Personal Impartial Attention”

Scale Reliability and Validity: Multi-item scale should be evaluated for reliability, validity and generalizability. This research paper assessed the reliability by using internal consistency reliability approach. Validity can be assessed by examining content validity, criterion validity and construct validity.

Reliability: Reliability refers to the extent to which a variable (or a set of variables) is consistent in what it is intended to measure. If multiple measurements are taken, the reliable measures will be very consistent in their values. The Cronbach’s α measure is a widely used reliability coefficient that assesses the internal consistency reliability of the entire scale. It is the average of all possible split-half coefficients resulting from different ways of splitting the scale items. This coefficient varies from 0 to 1. It is appropriate to use internal consistency reliability for each dimension, if several items are used to measure each dimension). In the present study, patient-perceived health-care quality is measured by considering different dimensions, each of which is measured by several items, and hence the computation of the Cronbach’s α to measure the internal consistency of each dimension is justified. Cronbach’s α values are as follows: Tangibility (.957), Reliability (.974), Responsiveness (.966), Assurance (.967), Empathy (.959). After factor analysis researcher calculated internal consistency of the extracted factors such as Physical Aspects (.831), Assured Reliability (.749), Easy Formalities (.762) and Personal Impartial Attention (.765). Hence, all the values are 0.70 and above, indicating a strong reliability of the questionnaire.

Validity: The validity of a scale as the extent to which differences in observed scale scores reflect true differences among objects on the characteristic being measured, rather than systematic or random error. In other words, validity refers to the degree to which a scale measures what it purports to measure. The proposed instrument is tested for various forms of validity to ensure that it appropriately examines the different dimensions of patient-perceived health care services. In this research paper, researcher determined different types of validity such as Content validity, Convergent validity and Criterion validity.

Content validity: Content validity is the subjective assessment of the correspondence between the individual items and the concept through ratings by expert judges, pre-tests with multiple small samples, or other means. This form of validity is also called face validity. The researcher examine whether the scale items adequately cover the entire domain of the construct being measured, in this connection researcher used modified SERVQUAL Model according to Indian context and take five dimensions such as Tangibility (12 items), Reliability (6 items), Responsiveness (6 items), Assurance (7 items), Empathy (4 items). The content validity of the questionnaire used in the present study is ascertained through pilot

survey. On the basis of patients' views and suggestions, modified scale developed for this study.

Convergent validity: Convergent validity of the health care services dimensions assesses the degree to which two measures of the same concept are correlated. Here, the researcher used values of factor loading, all the values of factor loading greater than 0.7. High correlations here indicate that the scale is measuring its intended concept. Thus, convergent validity confirms that the scale is correlated with other known measures of the concept.

Criterion validity: Criterion validity of the health care services model reflects whether a scale performs as expected in relation to other variables selected as meaningful criteria. One form of criterion validity is concurrent validity. While assessing concurrent validity, the data on the scale being evaluated and on the criterion variables are collected at the same time. The present questionnaire is assessed for concurrent validity. Thus, the concurrent validity, and consequently the criterion validity of the questionnaire, is established.

Managerial implications: The expectation scores obtained indicate that government district hospitals in Eastern Uttar Pradesh have high expectations concerning health care services. This might be due to the fact that most patients rely on treatment in government hospitals are better. In addition, the government's efforts to modernise its hospitals through the accreditation exercise have successfully improved the level of service quality. An implication of all this is that top management must place emphasis on change management. As a long-term solution, it is recommended that hospitals implement, on a continuous basis, an information system that can support efficient management decisions. It has been observed that Eastern Uttar Pradesh hospitals do not have good databases comparable, for example, with those of hospitals in the developed countries. The high expectations recorded in the present study, which exceed perceptions, indicate that patients perceive the quality of service negatively. All the attributed measures have exceeded perceptions. However, the present findings show that patient's expectations of health and medical services are also likely to change with time. The aim of the Eastern Uttar Pradesh government has been to ensure that the state becomes a regional hub for the provision of medical services. Government should also motivate to private hospitals to fill the gap of demand and supply.

5. Conclusion

This study described the development of a 17- item scale from the 35-items that can be used to measure perceived quality for both outpatients and in-patients in Eastern Uttar Pradesh. The analysis identified four distinct dimensions of perceived quality in health care services: (i) Physical Aspects, (ii) Assured Reliability, (iii) Easy Formalities, and (iv) Personal Impartial Attention. These dimensions provide information about the health care services getting by the patients in Eastern Uttar Pradesh. The reliability and validity of the perceived quality scale were assessed in various ways, and the scale was found to have good reliability and validity across different patient types and facility levels. The high alpha coefficient of the overall quality perception scale suggests that the items in the final scale measure a common underlying construct. The characteristics of the sampled patients correspond well with those of the general population of Eastern Uttar Pradesh. The results could be used in the planning for quality improvement by government district hospitals in Eastern Uttar Pradesh. According to the findings, the quality improvement efforts of government district hospitals is advised to mostly focus on *physical aspects* such as unique dress code and neat appearance of staff, proper sitting and bedding arrangement, medical store, diagnostic centre, blood bank, sufficient number of ambulances, and dustbins and spittoons, and government should concentrate on *assured reliability*, it is the bundle of benefits such as: providing promised services on time, hospital ties up with other hospitals, properly addressed queries of patient,

prompt response to the complaints of the patient, assurance of recovery before discharge, experienced doctors. Third suggestion is based on *easy formalities* factor; hospitals pay attention to certain attributes like quick and simple process of admission, less formal hospital management, efficient, effective and prompt discharge. Last but not least i.e. personal impartial attention construct, hospital staff should behave impartiality towards the patients, and operating hours convenient for all the patients.

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