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DIMENSIONS OF HEALTH CARE SERVICES AND THE USERS PERCEPTION ON SERVICE QUALITY IN TAMILNADU

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ABSTRACT

This study examines the service quality of healthcare centres - PHCs. It aims to assess the impact of service quality on overall patients satisfaction and their loyalty. The data collected from 688 respondents over 24 PHCs covering rural areas in Thoothukudi district. Descriptive statistical analysis, reliability test and exploratory factor analysis are used for arriving conclusion. A major determinant of physical environment quality is comfortability. The factors of answerability and attitude and behavior are responsible for service quality of doctors and nurses respectively. The factors of managerial services and special services are the important determinants for process quality and overall patient satisfaction and their loyalty.

KEYWORDS

health care, PHCs, service quality.

INTRODUCTION

Since eighties the income for the individuals increased significantly. This phenomenon has led to the boom for more concern for wellbeing-health. The value and lifestyles of the people are changing dramatically from perspective of survival to enjoying life. So quality of life requires healthy food, yoga, diet and the like. A significant portion of TV programs and books are assigned to show well-being or health-related stuff. High expectation toward health and well-being has led to demand for high quality medical services.

Quality of health care has been an issue of major concern to health professionals for a long time. One of the notable early advocates of quality health care was Florence Nightingale, who in the nineteenth century advocated the use of statistics and improve health care quality. They strongly believed that hospital operations should be driven by patients' interest and argued for process improvements on the basis of empirical data (Meyer and Bishop, 2007). So the patients interests are a fundamental part of service quality in modern health care systems. Alaloola and Albedaiwi (2008) observed that traditionally, managing service quality in health care entails such activities as checking providers credentials if they are qualified or not to provide the services; auditing clinical activities for the purposes of checking if clinical guidelines and protocols are being followed; auditing medical records as well as measuring outcomes in terms of whether the patients get better. The primary focus tends to protect patients from substandard care. The major problem however with the traditional way of managing quality in health services lies in its heavy reliance on technical clinical criteria and the absence of 'customers view' on the services provided.

SERVICE QUALITY

The quality has different meanings without accordance among scholars and managers. Parasuraman, Zeithaml & Berry (1988) made conceptualization and measurement of service quality. This focus group interview has captured not only the attributes of service quality but also the underlying psychological process by which consumers form service quality judgments. Finally they conclude that service quality judgments comprise of five underlying attributes that consumers evaluate on the basis of the expectancy-disconfirmation paradigm.

Naidu (2009) and Andaleeb (2001) observed that assessment of service quality in health services poses some interesting challenges that have engaged academics and practitioners for some time. Historically, the establishment of quality standards was delegated to the medical profession. Rashid and Jusoff (2009) noted that technical quality in health care services is primarily on the basis of technical accuracy of diagnoses or procedures as well as on compliance with professional specifications. However patients as customers of health care services often find themselves in a peculiar situation when it comes to assessing service quality as they are often not sufficiently qualified to assess all aspects of service quality particularly the technical aspects. Hardeep Chahal and Neetu Kumari (2009) identified the three dimensions of customer relationship management namely service quality, customer satisfaction and customer loyalty in healthcare sector. This study provides some important insights for CRM theory and practice. An understanding of SQ, CS and loyalty dynamics is a first step toward effective service management and the retention of customers in the long run. Three-way interactions between the main effects of SQ, CS and loyalty

yield additional insight into the relative importance of physical environment and IQ in customers' decision to be loyal, and that can provide a pave way for accomplishing CRM objectives.

METHODOLOGY

This research is basically focused on service quality of PHCs in Thoothukudi District of TamilNadu, India. It encompasses both primary and secondary data. The primary data were collected through a well structured interview schedule. The secondary data relating to health care services were obtained from text books, journals and websites. The primary data were collected from about 688 respondents who reside in the study area. In Thoothukudi District, there are 48 public health centres. Among these, 24 centres have selected as sample areas based on availability of minimum number of: doctors, nurses, beds and VHN as equal or exceeding four, three, thirty and seven respectively. The data were collected from about 688 respondents covering the villages of Karungulam, Pudukkottai, Alwarthirunagari, Ottanatham, Vellalankottai and so on.

Descriptive statistical analysis was used to describe respondents' demographic characteristics and to evaluate service quality perceptions on health care services. An exploratory factor analysis was performed on a total of 55 perception attributes included in the questionnaire which are analysed in five different aspects in order to determine underlying dimensions of health care services. Principal component analysis with varimax rotation was conducted. Items with Eigen values equal to or greater than 1, factor loadings above 0.5, and factors which contain at least three items were retained (Hair et.al 2006). Furthermore, a reliability analysis was performed to test the reliability of the scale and inner consistency of extracted factors. For this purpose, Cronbach's alpha coefficients were calculated. The Cronbach's alpha values are detected as greater than 0.60 (Nunnally, 1978). Prior to running the factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity were performed.

RESULTS AND DISCUSSIONS

The demographic characteristics of the sample are analysed and found that among the total respondents of 688, the males are little higher than females by nearly 5 percent. The sample was dominated by middle aged (31- 40 years). As far as educational qualification is concerned, more than 42 percent of the respondents are having the educational qualification at college level. About 42.9 percent and 28.8 percent of the respondents belong to the occupation of company and coolie respectively. In addition, 64.5 percent of the respondents drawing their family annual income exceeds Rs. 50000. More than 96 percent of the respondents are committed with their family i.e. married with having two children.

TABLE 1: DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Items	Counts	%	Items	Counts	%
Gender: Male	362	52.6	Family Annual Income: Below Rs. 10000	52	7.6
Female	326	47.4	10000-20000	82	11.9
Age: Below 20	5	0.7	20001-30000	37	5.4
21-30	166	24.1	30001-40000	31	4.5
31-40	240	34.9	40001-50000	42	6.1
41-50	169	24.6	Above 50000	444	64.5
Above 50	108	15.7	Marital Status: Married	662	96.2
Education: Illiterates	124	18.0	Unmarried	26	3.8
School level	269	39.1	Family Size:		
College level	295	42.9	Two	314	45.6
Occupation: Agriculturist	93	13.5	Three	158	23.0
Coolie	198	28.8	Four	195	28.3
Govt employee	102	14.8	Above Four	21	3.1
Company	295	42.9			

PHYSICAL ENVIRONMENT AND SERVICE QUALITIES

The range of physical environment quality perception item varies from 1 (highly dissatisfied) to 5 (highly satisfied). The mean scores of health care perceptions range from 2.31 to 3.35 and their standard deviations (S.D.) vary from 0.843 to 0.992. The lowest perception item is 'natural light', on the other hand, the highest perception item is 'oxygen services'. The overall mean score for physical environment quality perception item is 2.90. This score indicates rather high perceptions of health care services (annexure i). The generated score of KMO is 0.752 and highly significant Bartlett's test of Sphericity supported the appropriateness of using factor analysis to explore the underlying structure of perceived physical environment quality of health care services. The significance value is 0.00.

TABLE 2: FACTOR AND RELIABILITY ANALYSES OF PHYSICAL ENVIRONMENT QUALITY AND SERVICE QUALITY

Factors on Physical Environment Quality						Factors on Service Quality						
Items (n=19)	1	2	3	4	5	Doctor			Nurse			
						Items (n=10)	1	2	Items (n=9)	1	2	3
v5	0.840					v8	0.827		v5	0.847		
v6	0.783					v7	0.780		v3	0.870		
v8	0.778					v4	0.763		v4	0.867		
v4	0.760					v3	0.731		v7	0.866		
v3	0.633					v6	0.716		v6	0.849		
v1	0.559					v2	0.674		v8		-0.857	
v14		0.802				v10	0.662		v1		0.807	
v7		0.693				v1		0.817	v9			0.769
v13		0.683				v5		0.688	v2			-0.627
v19		0.632				v9		0.662				
v10		0.573										
v17			0.801									
v2			0.795									
v18			0.764									
v9				0.880								
v12				0.715								
v15					0.774							
v16					0.669							
v11					0.585							
E.V.	3.937	2.850	2.796	1.969	1.879	E.V.	3.917	2.241	E.V.	4.037	1.765	1.169
% of v	20.722	15.002	14.715	10.362	9.889	% of v	39.172	22.414	% of v	44.854	19.617	12.984
C.A.	0.710	0.710	0.187	0.452	0.187	C.A.	0.894	0.619	C.A.	0.923	-2.025	-3.36
KMO	0.752					KMO	0.882		KMO	0.841		

The exploratory factor analysis extracted five factors, which accounted for 70.69 percent of variance (% of v) in the data. Most of the factor loadings are greater than 0.60 implying a reasonably high correlation between extracted factors and their individual items (table 2). The range of communalities (com.) of 19 items varies from 0.524 to 0.834 indicating that a large amount of variance has been extracted by the factor solution. Since the fourth factor contained only two items, it could not be considered as a factor and is not interpreted. In total 70.69 percent of the variation in a sample has been explained by 4 factors that 17 variables load to.

The four remaining factors are labeled as F1 - Comfortability, F2 - Responsiveness, F3 - Integrity, F5 - Facility. The first factor contains most of the items and explains most of the variance. Thus, health care service reliability is an important determinant of physical environment quality. The sum squared value of factor loading relating to a factor, is referred to as Eigen value (E.V.), which indicates the relative importance of each factor in accounting for the particular set of variable being analyzed. Factor 1 (Comfortability) has the highest Eigen value of 3.937. Factors two, three and five have the Eigen values of 2.850, 2.796 and 1.879 respectively. Hence an inference can be drawn that the rotated and labeled factor one - comfortability determines the physical environment quality of PHCs. The Cronbach's alpha (C.A.) values are detected as greater than 0.60. The Cronbach alpha internal consistency reliability estimates for factor one and two 0.710 each, factors three and four are 0.187 and 0.452 respectively. The overall perception scale is 2.246 and indicates its high reliability.

Average scores of service quality of health care perceptions of doctors and nurses are shown in annexure ii. The mean scores of doctor perceptions range from 2.36 to 3.09 and their standard deviations vary from 0.745 to 0.868 and the nurse mean scores range from 2.36 to 3.11 and their standard deviations vary from 0.745 to 1.044. The lowest perception on doctor is 'communication with staff' and the highest perception item is 'operation competence'. The overall mean score of doctor perception item is 2.77. The lowest perception on nurse is 'patience' and the highest perception item is 'nursing expertise'. The overall mean score of nursing perception item is 2.65. Since the scores of KMO for service quality of doctor and nurse are higher 0.882 and 0.841 which significantly support the appropriateness of using factor analysis to explore the underlying structure of service quality.

The exploratory factor analysis of doctor extracted two factors and three factors in case of nurses which accounted for 61.58 and 77.45 percent of variance in the data respectively. In the case of nurse, the second and third factors contained two items only so they cannot be considered as factor and are not interpreted. In total 77.45 percent of the variations in a sample has been explained by one factor that five variables load to. The ranges of communalities for doctor and nurse are ranged from 0.691-0.829, 0.438-0.923 respectively indicating that a large amount of variance has been extracted by the factor solution.

The factors on service quality of doctor are labeled as F1-answerability, F2-presentation. The first factor contains most of the items and explains most of the variance. Thus, answerability is an important determinant service quality for doctor. The Eigen values for factor one and factor two are 3.917 and 2.241 respectively. A major factor that influences the service quality of nurse is labeled as behavior. This factor contains many items and explains most of the variance. The E.V. of factor one is 4.037. Thus it seems a lower degree of attitude and behaviour of nurses in the health centres. The cronbach alpha internal consistency reliability of doctor and nurse estimates are 0.894 (F1), 0.619 (F2) and 0.923 respectively. The overall perception scale is 1.513 (doctors) and 0.923 (nurses) which indicate high reliability.

PROCESS QUALITY AND PATIENTS SATISFACTION AND LOYALTY

Average scores of process quality of health care perceptions are shown in annexure iii. The mean scores of health care perceptions range from 2.57 to 3.30 with their standard deviations ranging from 0.927 to 1.053. The lowest perception item is 'administrative function' and the highest perception item is 'blood bank services'. The overall mean score for process quality perception item is 2.93. Since the KMO measure for sampling adequacy exceeds 0.6 and the value in significant level is less than 0.05, the data are suitable for factor analysis. The seven variables are grouped under two factors depending upon Eigen values of each factor.

TABLE 3: FACTOR AND RELIABILITY ANALYSES OF PROCESS QUALITY AND PATIENT SATISFACTION AND LOYALTY

Factors on Process Quality			Factors on Patient Satisfaction and Loyalty			
Items (n=7)	1	2	Items (n=10)	1	2	3
v2	0.761		v5	0.878		
v6	0.712		v3	0.751		
v5	0.710		v4	0.747		
v1	0.707		v1	0.670		
v4	0.700		v6	0.559		
v7		0.811	v10		0.916	
v3		-0.739	v7		0.849	
			v9		0.706	
			v8		0.525	
			v2			0.864
E.V.	2.683	1.451	E.V.	3.063	2.709	1.371
% of v	38.322	20.724	% of v	30.630	27.090	13.714
C.A	0.637	0.452	C.A.	0.637	0.525	0.132
KMO	0.709		KMO	0.696		

The factor analysis extracted two factors, which accounted for 59.046 percent of variance in the data. Since the second factor contained two items, it could not be considered and is not interpreted. The percentage of variance has explained by one factor in which five variables load to. The communalities of seven items range from 0.507 to 0.666. The first factor is labeled as F1 - Managerial Services. This factor contains five items and explains most of the variances. The reliability is an important determinant of perceived process quality. The Cronbach's alpha is used to analyze the reliability of each construct. The Cronbach's alpha internal consistency reliability estimates are 0.452 (F2) and 0.637 (F1). The overall perception scale is 1.089 which indicates its high reliability.

The mean scores of patient satisfaction and patient loyalty of health care perceptions vary from 2.61 and 3.25 with their standard deviations ranging from 0.951 to 1.034. The lowest perception item is 'up-to-date health care technique'. The highest perception item is 'trust' with those of centres. The overall mean score for perception item is 2.94. This score indicates high perceptions of health care services (annexure iv). The generated score of KMO is 0.696 and significantly support the appropriateness of using factor analysis to explore the underlying structure of patient satisfaction and patient loyalty.

The results of the factor analysis of health care perceptions are patient satisfaction and their loyalty are shown in table 3. The factor analysis extracted three factors, which accounted for 71.43 percent of variance in the data. The third factor contains only one item, so it could not be interpreted. The communalities of nine items range from 0.412 to 0.904. The two remaining factors are labeled as F1 - Special services, F2 - Reliability. The generated items with Eigen value more than one are included 10 items, the value of 7.143. Hence a factor 1: special services dominates with five attributes to determine the patients' satisfaction and their loyalty towards health care services.

Reliability is an analysis of a measure's ability to provide consistent results. Internal consistency using Cronbach's alpha, is shown to be appropriate with five point scale data. The first subscale with Cronbach alpha of 0.637 contains five items related to health care technique, indoor services, patient participation in suggestion and visiting for all treatments. The second subscale with Cronbach alpha of 0.525 contains four items related to emotional attachment, satisfaction regard to doctors, trust and recommendation. It has an overall Cronbach's alpha value of 1.294.

CONCLUSION

The patients prefer PHCs because they provide better health care services in rural areas. Service quality improvement programs should have initiated to identify the patients' expectations and assessing how well the practice may be doing on a variety of service quality dimensions with the aim of ensuring patient satisfaction. Patients' comfortability ensures the physical environment quality of health centres. Regarding Service quality the factors – answerability of the doctors and attitude and behaviour of the nurses are playing a major role. A factor of managerial services confirms the process quality of the centres and special services dominates the patients' satisfaction and their loyalty towards health care services. Finally, the health care centres should continue to collect data about perceived service quality from the patients on regular basis. This way they can keep track on perceived service quality of their hospital and continuously improve their service quality.

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APPENDIX

ANNEXURE I: AVERAGE SCORES OF PHYSICAL ENVIRONMENT QUALITY

Attributes	Mean	S.D.	Com.
v1 Natural lights	2.31	0.843	0.524
v2 Cleanliness of hospital	2.65	0.831	0.665
v3 Internal atmosphere	2.99	1.035	0.834
v4 Peaceful wards	3.09	1.011	0.740
v5 Hygienically clean wards	3.18	0.964	0.762
v6 Proper placement of beds	3.04	1.069	0.656
v7 Supportive facilities	2.55	0.962	0.715
v8 Telephone facilities	2.99	0.989	0.682
v9 Oxygen Services	3.35	0.992	0.802
v10 Bed sheets are changed daily	3.11	1.122	0.765
v11 Continuous water services	3.07	1.037	0.616
v12 Well equipped operation theatre	3.11	1.140	0.732
v13 Good technical services	2.90	0.958	0.730
v14 Equitable treatment to patients	2.50	1.043	0.704
v15 Hygienic life style	2.81	0.879	0.702
v16 Special service to needy	2.98	0.930	0.643
v17 Societal commitment	2.66	0.901	0.687
v18 Integrity and honesty in medical practices	2.93	0.977	0.702
v19 Employee role towards social responsibility	2.96	0.942	0.769
Overall mean for 19 attributes	2.90		

ANNEXURE II: AVERAGE SCORES OF SERVICE QUALITY

Doctor				Nurse			
Attributes	Mean	S.D.	Com.	Attributes	Mean	S.D.	Com.
v1 Communication with staff	2.36	0.745	0.713	v1 Behaviour with your friends and relatives	2.45	1.031	0.691
v2 Helpful and supportive	2.83	0.760	0.736	v2 Explain about technical treatment	2.89	0.901	0.780
v3 Attitude	2.88	0.857	0.670	v3 Attitude and behaviour	2.67	0.955	0.786
v4 Patient involvement	2.64	0.890	0.627	v4 Helpful and supportive	2.54	0.854	0.766
v5 Availability	2.50	0.882	0.494	v5 Caring	2.62	0.903	0.772
v6 Patience	2.69	0.811	0.596	v6 Answer Queries	2.60	0.859	0.792
v7 Professional Values	2.88	0.923	0.680	v7 Listening Ability	2.58	0.865	0.776
v8 Answer Queries satisfactory	2.71	0.779	0.730	v8 Nursing Expertise	3.11	1.044	0.780
v9 Operation competence	3.09	0.868	0.474	v9 Patience	2.36	0.745	0.829
v10 Diagnosis diseases correctly	3.07	0.879	0.438				
Overall mean for 10 attributes	2.77			Overall mean for 9 attributes	2.65		

ANNEXURE III: AVERAGE SCORES OF PROCESS QUALITY

Attributes	Mean	S.D.	Com.
v1 Good housekeeping services	2.64	1.016	0.507
v2 Listening ability of supportive staff	3.02	0.872	0.666
v3 Interaction with frontline staff	3.08	1.064	0.574
v4 Grievances handling system	2.88	1.024	0.518
v5 Administration function	2.57	0.927	0.545
v6 Laboratory services	3.00	0.954	0.592
v7 Blood bank services	3.30	1.053	0.732
Overall mean for 7 attributes	2.93		

ANNEXURE IV: AVERAGE SCORES OF PATIENT SATISFACTION AND LOYALTY

Attributes	Mean	S.D.	Com.
v1 Up-to-date health care technique	2.61	0.951	0.614
v2 Good technical facilities	2.86	0.959	0.857
v3 Indoor services	2.74	0.979	0.710
v4 Consciousness towards patient participation	2.74	0.910	0.618
v5 Patient participation in suggestion	2.70	0.921	0.775
v6 Visit for all treatments	3.23	1.036	0.635
v7 Satisfaction regard to doctors	2.93	1.011	0.807
v8 Recommendation	3.17	1.052	0.412
v9 Trust	3.25	1.034	0.813
v10 Emotional attachment	3.13	1.203	0.904
Overall mean for 10 attributes	2.94		

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