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Predictors of Patient Satisfaction in Three Tiers of Health Care Facilities of North India

Sonu Goel[1]*, Deepak Sharma[2], Pankaj Bahuguna[3], Sonika Raj[4] and Amarjeet Singh[5]

[1]*Assistant Professor of Health Management, School of Public Health-PGIMER, Chandigarh, India*
[2]*Senior Resident, School of Public Health, PGIMER, Chandigarh, India*
[3]*Research Assistant, School of Public Health, PGIMER, Chandigarh, India*
[4]*Research Scholar, Punjab University, Chandigarh, India*
[5]*Professor, School of Public Health, PGIMER, Chandigarh, India*

Abstract

Purpose: Satisfaction with quality of health care provision can be conceptualized as a degree of congruency between patient expectation and his perception of services and care received. This paper examines the level of satisfaction among patients attending OPD (Outpatient Department) in public health facilities of a city in Northern part of India.

Methodology: The study used a cross-sectional sample survey design, wherein a total of 942 study subjects were exit interviewed. An eighty item scale was developed and validated using Delphi technique which covers six major domains of patient satisfaction. It was pilot tested in twenty subjects for development of final tool. Each item was dichotomized as "not satisfied" and "satisfied". Binary logistic regression after controlling for confounders was performed to identify potential predictors of patient satisfaction.

Findings: Out of 942 study subjects, 827 (87.8%) were satisfied with the various dimensions of service provision at health care facilities. Multivariate analysis revealed that, dominant significant predictors of overall patient satisfaction are accessibility to health facility (OR=6.1), physician care (OR=4.8), and physical environment (OR=1.9).

Conclusion: There was an overall good level of satisfaction with OPD services. The policy makers should focus on correlates of satisfaction namely, accessibility to health facility, physician care, physical environment and management of health care facility.

Originality: Items of the questionnaire were drawn from a extensive literature review through various web based search engines on patient satisfaction studies conducted globally. For the first time in the country a comparison of three tiers of health care facilities of North India was undertaken to have a view of predictors at each of these levels of facility.

Keywords: Patient satisfaction, Delphi, health facility, Outpatient department.

Introduction

Satisfaction, like quality, is a multidimensional construct [1]. The satisfaction with a health care facility is premised on satisfaction with multiple aspects of organization. Satisfaction with quality of health care provision can be conceptualized as degree of congruency between patient expectation of services and care and his perception of services and care received [2].

In the modern era, the quality of services provided by the health sector is increasingly being measured by patient's experiences at the health facility. Several dimensions including behaviour of staff, patient physician interaction coupled with issues of administration of the health facility and physical environment are critical to the issue of patient satisfaction [3]. Patient satisfaction is also a barometer of patient outcome and other health indicators of a facility. A satisfied patient has better adherence to treatment protocols and goes for regular follow up for his illness. Thus, understanding of patient expectation and their level of satisfaction is of utmost importance for provision of good quality of health care [4].

Empirical evidences confirm to the fact that most public health facilities in India are little concerned about the facilities provided to the patients and their families and in-turn their satisfaction rate. The long queues outside the outpatient departments, small and unkempt waiting areas, poor condition of toilets, unsympathetic attitude of doctor and other health care staff bear eloquent testimony to this fact. Public health facilities cover a much broader part of the society and must comply with the patient's expectations in delivering quality services. The private care providers are only slightly better in terms of the facilities but the exploitative cost of the treatment is a deterrent for a common person in India, where nearly one third of population fall below poverty line. All these concerns make the assessment of patient's satisfaction with public health system even more important [5].

In recent years, patients are becoming more aware of their rights and conscious about their health. They both deserve, and demand best health care in every aspect. Patient's satisfaction with health care they receive is an important health outcome parameter to judge and improve quality of care. A decrease in patient satisfaction is seen wherever there is a lag between the patient's expectations and the service received [6].

While there are extensive literatures on patient satisfaction with medical services in developed nations, there are, to our knowledge, very few studies in the developing nations especially in India. This may be due to the fact that most people in this part of world are bothered more about basic survival needs rather than about health services. Against

***Corresponding author:** Sonu Goel, Assistant Professor of Health Management, School of Public Health-Post Graduate Institute of Medical Education and Research, Chandigarh, India, Tel: 09914208490; Fax: +91-172-2755215; E-mail: sonugoel007@yahoo.co.in

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this background, the present study was conducted to measure the level of satisfaction and its predictors among patients attending Outpatient Department (OPD) of health care facilities of Chandigarh city.

Methodology

This cross sectional study was carried out in public health facilities of Chandigarh city (longitude 76047' 14E; latitude 30044' 14N) in Northern part of India. The city serves as the capital of two states, Haryana and Punjab. As of 2011 India census, Chandigarh had a population of 960,787 with a density of about 7900 persons per square kilometre. Males constitute 55% of the population and the sex ratio is 829 females for every 1,000 males. Chandigarh has an average literacy rate of 86.77% and most health indicators are above national average.

The study sampled patients from the six major hospitals in Chandigarh city. The target population consisted of new outpatients over the age of 20 years. The sample size was calculated using the formula, $n = Z^2_{(1-\alpha/2)}pq/d^2$ (where $Z_{(1-\alpha/2)} = 1.96$ at 95% confidence; p = prevalence of patient satisfaction, q = 1-p; d = absolute allowable error). We assumed that 50% of the patients would be satisfied with the health services provided. We further set the allowable error at d=2%. Adding a 10% for incomplete answers, the required sample came to 1172. Thus, we selected a sample of 1200 patients.

A two-stage, stratified probability proportional to the size sampling technique was used to select the study sample. In the first stage, all the dispensaries, polyclinics, community health centres and general hospital in the study area were selected. In the second stage, random samples of the new patients coming to and getting treatment were drawn, proportional to numbers of the health centres. This resulted in more patients being enrolled from the dispensaries (n=609), as compared to polyclinics (n=89), community health centres (n=114) and general hospital (n=130). The study duration was six months (Sept 2010- Feb 2011).

The data was collected by two surveyors who had previous experience of data collection. They were appropriately trained in administering the questionnaire by the principal investigator, which helped to standardize the instrument. The patients were interviewed at the exit locations of the health facility at all times of the day during OPD hours so as to capture their experiences with various dimensions of care. In case, when patient was ill to be interviewed, his/her attendant was interviewed. Before starting the survey a pilot study was done by intervening 20 patients in health centres in a nearby study area. It was observed that the time taken to interview one study subject was nearly 15 minutes on an average.

Development of questionnaire

A literature review was initially done through various web based search engines on patient satisfaction studies conducted globally. The search engines were Pubmed (http://www.ncbi.nlm.nih.gov/pubmed), indMed (http://indmed.nic.in/), Directory of Open Access journals (http://www.doaj.org/) and Google scholar (http://scholar.google.co.in/). The key words for search included "patient satisfaction" and "Out patient department". Boolean method was used to refine the number of articles. In addition, manual search of articles was done from the institute library to collect relevant information. The search was not limited by year and country of publication. Screening of studies was then done based on title and abstract followed by evaluating full text which resulted in 20 relevant studies. The screened articles were used to develop a conceptual framework of patient satisfaction. Further, Delphi technique was selected for use in this study. It is based on the assumption that a group opinion has a greater validity than an individual opinion [7].

The Delphi exercise group consisted of academicians from PGIMER, Chandigarh (Community medicine experts, internal medicine expert, paediatrician, and gynaecologist) and medical officers posted in various health centres in Chandigarh. In the first round of Delphi technique, the conceptual framework was presented for discussion on various major domains and dimensions/items within domains. The framing of questions order was also discussed. At the end of this round, the principal investigator tried to build consensus on the domains and the dimensions of the instrument. In the second round which was held after two weeks, the experts revisited the instrument for refining and final drafting.

An eighty item scale was developed measuring six domains namely "accessibility", " display of signage's", "hospital management system", "physician care", "staff care" and "physical environment" (Table

	Items of scale	Total	Number responded	Proportion responded in affirmation
	Location of the health facility			
1	Health institution is easily accessible	942	933	99.0
2	The health facility is conveniently located	942	920	97.7
3	Hospital timings are convenient	942	627	66.6
4	Adequate parking space is available	942	788	83.7
5	Counter is located near the entrance door	878	858	97.7
6	Doctor can be reached for query/help regarding illness without problem	909	631	69.4
7	Pharmacy was located at convenient place	699	695	99.4
	Display of signage			
1	Sign board for registration counter present	938	618	65.9
2	Sign board was clearly visible to patient	941	615	65.4
3	Signage/Directions for various facilities was there	935	471	50.4
4	Doctors qualification was mentioned on name plate	878	420	47.8
5	Visiting hours of the doctor were mentioned	768	617	71.7
	Management			
1	The counter was not over-crowded	875	342	39.1
2	Personnel was available at the counter	873	847	97.0
3	Patient has to wait less before examination by physician	888	395	44.5
4	Personnel was available in the pharmacy	700	695	99.3
5	There was availability of medicines in the pharmacy	711	492	69.2

	Physical environment	942	743	78.9
1	Separate ramp/wheel chair available for person with disabilities	942	438	46.5
2	There was a queue at the counter	942	567	60.2
3	There was a separate queue for ladies/elderly	942	765	81.2
4	Personnel was available at the counter	942	467	49.6
5	Registration area was comfortable	923	857	92.8
6	Sitting space was adequate and chairs were comfortable	935	834	89.2
7	Fans and light working	940	926	98.5
8	Overall the hospital was clean	940	770	81.9
9	Separate toilets for both sexes were there	928	835	90.0
10	Toilets were clean and in usable condition	940	130	13.8
11	Some health educating posters were pasted on the walls	941	573	60.9
12	Telephone facility was available	942	675	48.3
13	Transport facility to be used in emergency	938	453	48.2
14	There was proper arrangement of drinking water	967	876	90.5
	Physician care			
1	Doctor gave adequate time to explain the problem thoroughly	935	807	86.3
2	Doctor examination was behind screen	421	219	52.0
3	Doctor examined in very satisfactory manner	926	812	87.7
5	Explanation was in an understanding manner	886	874	98.6
6	Doctor explained the reason for medical test	675	345	51.1
7	Doctor gave the prescription	930	889	95.6
8	Doctor gave clear instructions about dosage of medicines	887	801	90.3
9	Doctor explained the side effects properly	692	156	22.5
10	There was a female doctor/attendant for female patient	487	357	73.3
11	There was an attendant for kids and disabled patients	391	145	37.1
12	Patient trusts the doctor for confidentiality of records	730	677	92.7
13	Doctor sometimes hurries too much when he/she treats	902	290	32.2
14	Some of the doctors seemed to lack experience	934	37	96.0
15	Doctors sometimes ignore what the patient tells them	908	164	18.1
16	Doctor gave advice about ways to avoid illness and stay healthy	887	422	47.6
17	Doctor did not use medical terms without explaining what they meant	893	756	84.7
18	Doctor gave clear advise for dosage and timing of medicine	869	759	87.3
19	Doctor listens carefully to what the patient has to say	928	795	85.7
20	Doctor gave clear instructions when to return	869	759	87.3
	Staff care			
1	Behaviour of the clerk was respectful	835	670	80.2
2	Verbal direction to doctor's room was told	846	468	55.3
3	Pharmacist explained the prescription in a good way	765	486	63.5
4	Took little time to dispense medicines	871	650	74.6

Table 1: Descriptive statistics of items in the patient satisfaction questionnaire.

1). The responses for each item in the questionnaire were "strongly agree", "agree", "neutral", "disagree" and "strongly disagree". For the purpose of analysis, the responses to questions were dichotomized as "not satisfied" or "satisfied". Scores of all the questions in a particular domain were added and thereafter composite score for each domain were calculated. They were then dichotomized as "below average satisfied" if the dimension score was below 0.5 and "above average satisfied if the item score was above 0.5".

The questions in which null responses were more than 30% (i.e. where more than 30% of respondents had not responded to a particular question) were excluded from the analysis. This methodology resulted in reducing eighty items to fifty five items. The dependent variable (overall satisfaction level) was the assessed by the question "I am satisfied with the medical care I received here". Those who responded "yes" were considered to be overall satisfied with services at the health facility. The independent variable like age, literacy etc. were categorized into groups. A person was considered as literate if he was the able to read and write with understanding in any language.

The study was approved by the Institute Ethic Committee of PGIMER, Chandigarh, India. Prior permission was sought from the hospital administrator of the concerned health care facility. Informed consent was obtained from each patient interviewed. The data was kept utmost confidential. Data was analysed using SPSS version 17 for windows.

Results

The response rate to the questionnaire was 74.5 % (942/1200). The average age of the patients was 36.6 years (SD=13.7, range=20 years–88 years). Out of 942 study subjects 827 (87.8%) were satisfied with the health care facility. Satisfaction level did not vary across the different age groups (20-30 years= 86.3%, 30-59 years= 88.2%, 60 years and above= 88.0%). The satisfaction level was not significantly different between males (88.6%) and females (86.9%) and between literates (88.3%) and illiterates (85.2%). Patients attending lower level health care facilities like dispensary (89.4%) and polyclinic (87.7%) were more satisfied as compared to those attending higher level facilities like community health centres (83.4%) and district hospital (82.0%) Table 2.

Multivariate results revealed that, for all facilities, dominant

Variable	Satisfied	Significance
Age group		
20-30 years (N=284)	245(86.3)	Chi square =1.03, p>0.05, df =2.
30-59 years(N=490)	432(88.2)	
60 and above (N=169)	149(88.0)	
Gender		
Male (N=460)	408(88.6)	Chi square =1.32 p>0.05, df =1.
Female (N=482)	419(86.9)	
Education		
Illiterate N=(169)	144(85.2)	Chi square =2.3 p>0.05, df =1.
Literate N=(773)	683(88.3)	
Type of facility		
Dispensary (N=609)	545(89.4)	Chi square =9.8 P<0.05, df =3.
Polyclinic (N=114)	100(87.7)	
Community health centre (N=130)	109(83.4)	
District Hospital (N=89)	73(82.0)	

Table 2: Correlates of patient's satisfaction in the study population.

significant predictors of overall patient satisfaction are accessibility to health facility (OR=6.1), physician care (OR=4.8), and physical environment (OR=1.9). For polyclinic, significant predictors of patient satisfaction are accessibility to health facility (OR=10.3), physical environment (OR=2.6) and physician care (OR=2.4). For community health centres the education level (literate OR=0.2) and physician care (OR=75.4) predict patient satisfaction. Finally for district hospital, the significant predictor of patient satisfaction was physician care (OR=7.7) Table 3.

Discussion

The present study showed that most of the patients (87.8%) were satisfied with the OPD services of health care facilities. This level of satisfaction reported in our study is comparable with studies reported in India and other parts of the world. Al Emadi et al. reported overall satisfaction rate of 75.2% among outpatient health care facilities of Qatar [6]. Similarly, Olusina et al in Nigeria reported that 75%

Predictors		Odds Ratio (Confidence interval)				
		Overall	Polyclinic	Dispensary	CHC	District Hospital
Gender	Male	Ref.	Ref.	Ref.	Ref.	Ref.
	Female	1.4(0.9-2.3)	1.2(0.6-2.2)	0.7(0.1-3.0)	0.6(0.1-2.5)	1.8(0.4-8.8)
Age group	20-30 years	Ref.	Ref.	Ref.	Ref.	Ref.
	30-59 years	0.9(0.5-2.1)	1.7(0.7-4.4)	0	0.1(0.0-5.7)	0.3(0.0-3.8)
	60 and above	0.7(0.3-2.0)	2.2(0.5-9.7)	0	0.1(0.0-3.7)	0.1(0.0-2.5)
Education	Illiterate	Ref.	Ref.	Ref.	Ref.	Ref.
	Literate	1.2(0.7-2.0)	1.5(0.7-3.1)	0.6(0.1-6.5)	0.2(0.0-0.9)	5.0(0.9-28.0)
Access	Below average	Ref.	Ref.	Ref.	Ref.	Ref.
	Above average	6.1(1.2-31.9)	10.3(1.8-57.9)	0	Nil	2.3(0.0-119.5)
Display of signage's	Below average	Ref.	Ref.	Ref.	Ref.	Ref.
	Above average	0.7(0.5-1.2)	0.8(0.4-1.4)	1.7(0.4-6.6)	Nil	4.2(0.9-18.8)
Management	Below average	Ref.	Ref.	Ref.	Ref.	Ref.
	Above average	1.0(0.6-1.6)	0.8(0.4-1.6)	0	2.4(0.4-14.2)	0.5(0.0-16.5)
Physical environment	Below average	Ref.	Ref.	Ref.	Ref.	Ref.
	Above average	1.9(1.1-3.3)	2.6(1.3-5.0)	3.3(0.7-15.2)	Nil	Nil
Physician care	Below average	Ref.	Ref.	Ref.	Ref.	Ref.
	Above average	4.8(3.1-7.4)	2.4(1.3-4.5)	4.0(0.9-16.3)	75.4(13.0-435.3)	7.7(1.6-37.5)
Staff behaviour	Below average	Ref.	Ref.	Ref.	Ref.	Ref.
	Above average	1.3(0.8-2.2)	1.0(0.4-2.1)	1.0(0.2-4.9)	2.4(0.3-14.7)	3.6(0.7-18.9)
r-square		0.078	0.052	0.132	0.313	0.249
adjusted r-square		0.154	0.113	0.252	0.533	0.408

Table 3: Association of different parameters with patient satisfaction using logistic regression model "Nil means the domain is not displayed in the model, as all the responses for them were above average".

outpatients were satisfied with health care facility [8]. A survey by De Brun et al in hospitals in Ireland reported higher level of satisfaction (94%) with outdoor patient services [9]. Studies conducted in India have reported patient satisfaction score ranging from 60%-70% [10-13]. However, another survey done by Nazirah et al reported low level of satisfaction (23%) [14]. This variation could be due to variation in the way services are delivered and differences in study populations and hence patients' expectations. Social desirability bias may also influence satisfaction level on the higher side, if patients were interviewed at the health facility.

The present study found that patient satisfaction was not affected by the age group. Contrary to our finding; studies have observed that the patient satisfaction scores improve with increasing age [15-17]. In our study, we found illiterate individuals were more satisfied with health care facilities as compared to literate. This finding may be due to the fact that illiterates have lesser expectations with health care facilities and thus are satisfied with moderate level of facilities. Similar to our finding, studies have observed that less educated people tend to be more satisfied, as compared to highly educated people [13,14].

The results of logistic regression analysis reveals that for overall health care facilities, the accessibility to health care facility, physician care and physical environment parameters were significant predictor of patient satisfaction". Souter VL et al reported that two aspects of care which rank most highly in terms of importance by their patients were 'the information and explanation given' and the 'doctor's attitude' [18]. Other studies have also demonstrated physician quality of service as the most important factor of patient satisfaction [19,20]. The attitudes and behaviours of health personnel are important in shaping patient satisfaction with public health care facilities. A study done Bangladesh by Aldana et al reported that providers' behaviour towards patients, particularly respect and politeness was a powerful predictor for patient satisfaction [20]. Another study in Tanzania reported that staff

behaviour correlates with patients [21].

In conclusion there was overall good patient satisfaction level with the Outpatient Department. The policy makers should focus on correlates of satisfaction namely, accessibility to health facility, physician care and physical environment of health care facility.

The primary strength of the study is involvement of physicians from wide medical and surgical disciplines from premier institutes of India in designing the satisfaction scale. The limitation is that the findings of this study can not be generalized to other health care facilities and patient's perspective was not taken into account during development of the questionnaire.

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