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Patient Satisfaction and Its Associated Factors Among Outpatient and Inpatient Health-Care Service Users: A Cross-Sectional Study

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Abstract

Background

Evaluating patient experience and satisfaction is a critical marker of quality in healthcare systems. This study aimed to comprehensively evaluate patient experiences, identify operational bottlenecks, and measure satisfaction across outpatient department (OPD) and inpatient department (IPD) services at a tertiary care referral centre in North India.

Methods

This hospital-based cross-sectional study was conducted at a tertiary care super-specialty hospital in Lucknow, India, from January 1, 2025, to December 31, 2025. A total of 500 patients (aged 18 years or older) were enrolled after obtaining informed consent. Data were collected using a structured and pre-tested questionnaire covering socio-demographic details, clinical profiles, specific service-related experiences, and overall satisfaction measured on a 5-point rating scale. One-way ANOVA, the chi-square test, and binary logistic regression analysis were employed to compare means, examine associations, and identify independent predictors, respectively.

Results

Among the 500 participants, mean age was 41.3 ± 19.2 years; 216 (43.2%) were female, 309 (61.8%) resided in rural areas, 216/468 (46.2%) were unemployed, and 235/377 (62.3%) belonged to lower-income brackets (≤ INR 27,648 /month). Long-distance travel (> 100 km) was reported by 374 (74.8%) of participants. The most common primary disease conditions were kidney diseases (102, 20.4%) and neurological disorders (81, 16.2%). Overall satisfaction levels were quite high among both OPD and IPD patients. A total of 257 (51.4%) OPD patients and 226 (45.2%) IPD patients rated the overall quality of services as 'excellent'. When OPD and IPD patients were considered together, 244 (48.8%) rated the overall management as 'excellent'. Among the various aspects of management irrespective of OPD and IPD services, the care provided by doctors received the highest praise, with 95 (19.0%) patients highlighting it. Additionally, 122 (24.4%) patients expressed satisfaction with the services provided, indicating a generally positive perception of the healthcare services. Major areas identified for improvement included time-consuming processes (21, 4.2%), security services (20, 4.0%), support services (18, 3.6%), and toilet/water facilities (15, 3.0%). No statistically significant association was found between primary disease category and overall OPD management. Experiences with doctors, as well as perceptions regarding nursing care and the quality of treatment, emerged as the key independent factors influencing patient satisfaction.

Conclusions

Patients expressed high overall satisfaction with clinical care and management at this tertiary institution. However, targeted administrative strategies to streamline operational workflows, reduce waiting times, and improve basic facility maintenance (sanitation and amenities) are needed to optimise patient-centred service delivery.

Categories: Health Policy, Public Health, Epidemiology/Public Health
Keywords: ayushman bharat, healthcare delivery system, hospital, inpatients, operational efficiency, outpatient clinics, patient's satisfaction, quality of healthcare, tertiary care centers

Introduction

Traditional medical practice has historically focused predominantly on clinical history, diagnostic investigations, disease management, and objective physical outcomes. This provider-centric model has been increasingly criticised for fostering a paternalistic doctor-patient relationship wherein the health provider's evaluation of clinical success may be different from the patient's lived perspective [1]. Over the past few

decades, a paradigm shift has positioned patient perception and experience as fundamental indicators of healthcare quality, clinical effectiveness, and institutional performance [2-4]. Donabedian's seminal framework on healthcare quality emphasises that patient satisfaction serves as a primary outcome metric, offering direct insights into a provider's ability to fulfil client expectations [3]. Patient satisfaction is now recognised not merely as a customer service metric, but as a critical driver of clinical compliance, treatment adherence, post-discharge follow-up, patient retention, and positive institutional recommendations [5-8]. Furthermore, higher satisfaction levels are strongly linked to reduced medical malpractice claims, enhanced patient safety, and optimised resource allocation [7, 9].

Healthcare delivery is a multidimensional construct jointly produced by providers, administrative systems, and patients [3, 8, 10]. Global and national literature classifies factors influencing patient satisfaction into provider-related domains - such as technical competence, interpersonal communication, staff behaviour, and physical infrastructure - and patient-related demographic variables, including age, gender, educational status, socioeconomic background, and pre-existing expectations [11, 12]. Substantial research has been done to study the complex interplay among these service domains, including interpersonal communication, physician empathy, and nursing care, which consistently emerge as primary drivers of positive patient ratings [9, 10, 13-15]. Further, dissatisfaction in public health settings frequently stems from non-clinical operational failures. Studies consistently highlight excessive waiting times, cumbersome registration procedures, poor organisational coordination, and inadequate physical amenities such as sub-optimal toilet cleanliness, sanitation, and food quality as major institutional bottlenecks [6, 14-16].

In developing nations like India, research on patient satisfaction has rapidly expanded in recent years. However, most existing studies remain constrained in scope: they have evaluated patient feedback either in isolated clinical specialities (e.g., surgical or oncology units), within single service streams (e.g., outpatient departments exclusively), or across lower tiers of care such as primary and secondary facilities [6, 8, 9, 14]. Comprehensive evaluations simultaneously examining both Outpatient Department (OPD) and Inpatient Department (IPD) services within public apex tertiary referral centres remain comparatively sparse [12, 15]. Apex public tertiary institutes cater to vast, geographically dispersed populations handling complex, multi-system chronic illnesses. Patients accessing these facilities often navigate significant socioeconomic vulnerabilities and arduous long-distance travel, making their experience sensitive to both clinical competence and operational efficiency. Systematic evaluation of patient feedback at this level is crucial for identifying systemic service gaps, rationalising resource distribution, and operationalising continuous quality improvement (CQI) programs [17, 18]. Therefore, the aim and objective of this study is to evaluate patient satisfaction with outpatient (OPD) and inpatient (IPD) services at a tertiary care referral center and to identify the key factors influencing patient satisfaction. Accordingly, this study aims to evaluate patient satisfaction levels, and its key predictors across OPD and IPD services at a tertiary referral centre to inform evidence-based quality improvement.

Materials And Methods

This hospital-based cross-sectional study included 500 consecutive patients aged ⩾ 18 years who attended the OPD as well as discharged from the IPD after obtaining informed consent during 1st January 2025 to 31st December 2025 at Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India. Data collection continued throughout the designated study period until completed questionnaires containing information on all necessary aspects were received from 500 patients. Elderly people with severe speech, visual or hearing impairment were excluded. This study was conducted as part of a PhD thesis and was approved by the Institutional Ethics Committee [IEC: 2024-57-PhD-EXP-57, dated 15th May 2024].

A structured questionnaire was used for data collection. This questionnaire was developed based on a review of existing literature and consultations with six subject matter experts to establish content validity. The experts evaluated the questionnaire based on criteria such as relevance, clarity, comprehensiveness, simplicity, lack of ambiguity, necessity, and practicality. Scores across these parameters ranged from 86.7% to 100%, indicating satisfactory content validity. Subsequently, a pilot study involving 30 patients was conducted to assess the feasibility of the data collection process and identify potential difficulties in administering or understanding the questionnaire. Based on the feedback and experiences shared by participants during the pilot study, minor modifications were made to enhance the questionnaire's clarity and usability before its final implementation.

The questionnaire has five sections as follows: Section A - General Information including age, gender, marital status, educational status, occupation, income range, department of treatment, and duration of treatment at the institute; Section B - Clinical details including primary disease and the presence of comorbidities; Section C - Patient experiences and satisfaction with different service delivery processes, including registration, appointment system, waiting time, doctor-patient interaction, nursing care, diagnostic and laboratory services, pharmacy services, cleanliness, security staff behaviour, inter-departmental coordination; Section D - Experience with admission and discharge procedures, doctors, nurses and other staff, kitchen services, and financial processes; and Section E - Overall satisfaction with OPD and IPD services measured using a 5-point rating scale along with an open-ended question to record additional suggestions, complaints, or feedback from patients (see the supplementary figure in the Appendices section). Overall Cronbach's alpha was 0.842, showing good reliability.

Assuming 50% satisfaction with the current services among OPD and IPD patients at a 5% level of significance and 10% relative error, the minimum sample size is 385. To ensure reliability of estimates, data from 500 participants were collected. Information regarding Outpatient Department (OPD) visits, Inpatient Department (IPD) admissions, and other related variables was collected from these 500 patients. Descriptive statistics of the continuous variables were presented as mean (standard deviation), while categorical variables were presented as number with percentage. Association between categorical variables was tested using the Chi-Square test. One-way ANOVA test was used to compare the means between three groups. Multivariable binary logistic regression analysis was used to identify independent predictors of satisfaction among OPD patients, IPD patients, and with services overall (OPD+IPD). A p-value <0.05 was considered statistically significant. Statistical analyses were performed using 'Statistical Package for the Social Sciences' (SPSS) version 23 (IBM Corp., Armonk, NY, USA) and Stata version 19 (Stata Corp LLC, College Station, TX, USA).

Results

The study included 500 participants, with a mean age of 41.3 ± 19.2 years. Females made up 216 (43.2%) of the study population, and most were married (386; 77.2%), lived in rural areas (309; 61.8%), and were unemployed (216/468; 46.2%). More than one-third (188; 37.6%) were graduates. Most participants belonged to lower socioeconomic groups, with 133/377 (35.3%) reporting a monthly family income of ⩽ INR 9,226 and an additional 102/377 (27.1%) reporting an income between INR 9,232 and INR 27,648. Only 76/377 (20.2%) had a monthly family income exceeding INR 46090. Health insurance coverage was low (59/364, 16.2%), although 187/478 (39.1%) were beneficiaries of the Ayushman Bharat scheme. Approximately one-quarter of participants resided within 100 km (126; 25.2%) of the institute, 123 (24.6%) lived 101-200 km away, another 123 (24.6%) travelled 301-500 km, 90 (18.0%) travelled 201-300 km, and 38 (7.6%) travelled more than 500 km to receive treatment. Overall, 282 (56.4%) were visiting SGPGIMS for the first time, while more than two-thirds, 337 (67.4%), had been receiving treatment at the institute for less than one year (Table *1*).

Participant Characteristics	Overall Satisfaction with OPD Services (N=500)					
	≤Average [52, 10.4%]	Good [191, 38.2%]	Excellent [257, 51.4%]	Total [500, 100%]	Test Statistics	p-value
Distance between home and SGPGI (in km)	227.0 (176.2)	246.4 (182.5)	248.8 (186.4)	245.6 (183.6)	0.308	0.735
Age (in Years)	43.27 (18.76)	40.26 (19.77)	41.69 (18.87)	41.31 (19.17)	0.607	0.546
Unemployed (n=468)						
Yes	24 (46.2%)	71 (37.2%)	121 (47.1%)	216 (43.2%)	6.125	0.047
No	23 (44.2%)	111 (58.1%)	117 (45.5%)	252 (50.4%)		
Getting treatment in SGPGI						
<1 Year	37 (71.2%)	134 (70.2%)	168 (64.6%)	337 (67.4%)	1.917	0.383
>=1 Year	15 (28.8%)	57 (29.8%)	91 (35.4%)	163 (32.6%)		
Reason for Treatment						
Multiple	6 (11.5%)	25 (13.1%)	18 (7.0%)	49 (9.8%)	10.947	0.362
Cancer	3 (5.8%)	15 (7.9%)	22 (8.6%)	40 (8.0%)		
Kidney	15 (28.8%)	36 (18.8%)	51 (19.8%)	102 (20.4%)		
Trauma	0 (0.0%)	5 (2.6%)	11 (4.3%)	16 (3.2%)		
Neurological	10 (19.2%)	29 (15.2%)	42 (16.3%)	81 (16.2%)		
Others	18 (34.7%)	81 (42.4%)	113 (44.0%)	212 (42.4%)		
Gender						
Male	27 (51.9%)	103 (53.9%)	154 (59.9%)	284 (56.8%)	2.168	0.338
Female	25 (48.1%)	88 (46.1%)	103 (40.1%)	216 (43.2%)		
Marital Status						
Married	40 (76.9%)	154 (80.7%)	192 (74.8%)	386 (77.2%)		
Unmarried	11 (21.2%)	36 (18.8%)	60 (23.3%)	107 (21.4%)	3.232	0.520

Others	1 (1.9%)	1 (0.5%)	5 (1.9%)	7 (1.4%)		
Area of Residence						
Urban	16 (30.8%)	69 (36.1%)	106 (41.2%)	191 (38.2%)	2.574	0.276
Rural	36 (69.2%)	122 (63.9%)	151 (58.8%)	309 (61.8%)		
First Visit to SGPGI						
Yes	29 (55.8%)	115 (60.2%)	138 (53.7%)	282 (56.4%)	1.899	0.387
No	23 (44.2%)	76 (39.8%)	119 (46.3%)	218 (43.6%)		
Education						
Graduate and Above	19 (36.5%)	71 (37.2%)	98 (38.1%)	188 (37.6%)	0.071	0.965
Below graduate	33 (63.5%)	120 (62.8%)	159 (61.9%)	312 (62.4%)		
Monthly Family Income (in Rupees) (n=377)						
<=9226	15 (28.8%)	47 (24.6%)	71 (27.6%)	133 (26.6%)	11.204	0.511
9227-27648	8 (15.4%)	44 (23.0%)	50 (19.4%)	102 (20.4%)		
27649-46089	7 (13.4%)	31 (16.2%)	28 (10.9%)	66 (13.2%)		
≥46090	10 (19.2%)	26 (13.6%)	40 (15.5%)	76 (15.2%)		
Health Insurance (n=464)						
Yes	11 (21.2%)	19 (9.9%)	29 (11.2%)	59 (11.8%)	5.50	0.068
No	36 (69.2%)	156 (81.7%)	213 (82.9%)	405 (81.0%)		
Ayushman Bharat/ Treatment assistance (n=478)						
Yes	24 (46.2%)	57 (29.8%)	106 (41.2%)	187 (37.4%)	6.695	0.035
No	26 (50.0%)	122 (63.8%)	142 (55.2%)	291 (58.2%)		

TABLE 1: Distribution of participant characteristics by overall satisfaction with OPD services (N=500)

Data are presented as mean (standard deviation) and compared using one-way analysis of variance (ANOVA). Categorical data are presented as numbers (%) and compared using the chi-square test. F-statistic and chi-square (χ^2) statistic were calculated for the one-way ANOVA and chi-square test, respectively. A P-value of less than 0.05 was considered statistically significant.

Kidney diseases were the most common primary diagnosis (102, 20.4%), followed by neurological disorders (81, 16.2%), gastrointestinal diseases (58, 11.6%), cardiovascular diseases (52, 10.4%), multiple disease conditions (49, 9.8%), and cancer (40, 8.0%), while the remaining disease categories individually accounted for less than 6% of participants (Table *2*). Nephrology contributed the largest proportion of both OPD (89, 17.8%) and IPD (87, 17.4%) participants, followed by gastroenterology (58, 11.6% and 59, 11.8%, respectively), neurosurgery (56, 11.2% and 53, 11.0%), neurology (42, 8.4% and 38, 7.6%), and cardiology-related specialities (50, 10% and 50, 10%), respectively.

Participant Characteristics	**Overall Satisfaction with IPD Services (N=500)**					
	≤Average [61, 12.2%]	Good [213, 42.6%]	Excellent [226, 45.2%]	Total [500, 100%]	Test Statistics	p-value
Distance between home and SGPGI (in km)	228.4 (188.2)	239.8 (175.6)	255.7 (189.9)	245.6 (183.6)	0.576	0.489
Age (in Years)	43.23 (19.95)	40.40 (18.62)	41.64 (19.50)	41.31 (19.17)	0.716	0.563

Unemployed (n=468)						
Yes	22 (36.0%)	92 (43.2%)	102 (45.1%)	216 (43.2%)	2.180	0.336
No	36 (59.0%)	109 (51.1%)	107 (47.3%)	252 (50.4%)		
Getting treatment in SGPGI						
<1 Year	36 (59.0%)	148 (69.5%)	153 (67.7%)	337 (67.4%)	2.381	0.304
>=1 Year	25 (41.0%)	65 (30.5%)	73 (32.3%)	163 (32.6%)		
Reason for admission						
Multiple	9 (14.8%)	25 (11.7%)	15 (6.6%)	49 (9.8%)	10.314	0.413
Cancer	5 (8.2%)	15 (7.0%)	20 (8.8%)	40 (8.0%)		
Kidney	13 (21.3%)	45 (21.1%)	44 (19.5%)	102 (20.4%)		
Trauma	0 (0.0%)	9 (4.2%)	7 (3.1%)	16 (3.2%)		
Neurological	7 (11.5%)	37 (17.4%)	37 (16.4%)	81 (16.2%)		
Others	27 (44.2%)	82 (38.6%)	103 (45.6%)	212 (42.4%)		
Gender						
Male	37 (60.7%)	116 (54.5%)	131 (58.0%)	284 (56.8%)	0.970	0.616
Female	24 (39.3%)	97 (45.5%)	95 (42.0%)	216 (43.2%)		
Marital Status						
Married	51 (83.6%)	162 (76.1%)	173 (76.5%)	386 (77.2%)	2.466	0.651
Unmarried	9 (14.8%)	49 (23.0%)	49 (21.7%)	107 (21.4%)		
Others	1 (1.6%)	2 (0.9%)	4 (1.8%)	7 (1.4%)		
Area of Residence						
Urban	18 (29.5%)	88 (41.3%)	85 (37.6%)	191 (38.2%)	2.861	0.239
Rural	43 (70.5%)	125 (58.7%)	141 (62.4%)	309 (61.8%)		
First Visit to SGPGI						
Yes	29 (47.5%)	126 (59.2%)	127 (56.2%)	282 (56.4%)	2.608	0.271
No	32 (52.5%)	87 (40.8%)	99 (43.8%)	218 (43.6%)		
Education						
Graduate and above	26 (42.6%)	89 (41.8%)	73 (32.3%)	185 (37.0%)	4.950	0.084
Below graduate	35 (57.4%)	124 (58.2%)	153 (67.7%)	311 (62.2%)		
Monthly Family Income (in Rupees) (n=377)						
<=9226	18 (29.5%)	55 (25.8%)	60 (26.5%)	133 (26.6%)	7.766	0.616
9227-27648	13 (21.3%)	41 (19.2%)	48 (21.2%)	102 (20.4%)		
27649-46089	12 (19.7%)	32 (15.0%)	22 (9.7%)	66 (13.2%)		
≥46090	8 (13.1%)	35 (16.4%)	33 (14.6%)	76 (15.2%)		
Health Insurance (n=464)						
Yes	8 (13.1%)	21 (9.8%)	30 (13.3%)	59 (11.8%)	2.175	0.337
No	43 (70.5%)	185 (86.8%)	177 (78.3%)	405 (81.0%)		
Ayushman Bharat/ Treatment assistance (n=478)						

Yes	25 (41.0%)	66 (31.0%)	96 (42.5%)	187 (37.4%)	6.880	0.032
No	33 (54.0%)	138 (64.8%)	120 (53.0%)	291 (58.2%)		

TABLE 2: Distribution of participant characteristics by overall satisfaction with IPD services (N=500)

Data are presented as mean (standard deviation) and compared using one-way analysis of variance (ANOVA). Categorical data are presented as numbers (%) and compared using the chi-square test. F-statistic and chi-square (χ^2) statistic were calculated for the one-way ANOVA and chi-square test, respectively. A P-value of less than 0.05 was considered statistically significant.

When asked to identify the best hospital services, 122 (24.4%) of participants reported that all services were good, while among individual services, doctors' care (95, 19.0%) was the most frequently appreciated aspect, followed by security services (66, 13.2%), overall treatment (34, 6.8%), and cleanliness (27, 5.4%). More than half of the participants (268, 53.6%) reported that there were no poor services in the hospital. Among those identifying areas requiring improvement, the most frequently reported concerns were time-consuming hospital processes (21, 4.2%), security services (20, 4.0%), other support services (18, 3.6%), parking (10, 2.0%), nursing services (9, 1.8%), pharmacy services (9, 1.8%), toilet facilities (9, 1.8%), and transport services (8, 1.6%). Additionally, 62 (12.4%) did not identify any worst service (recorded as "No comment"). Most participants, 292 (58.4%), reported no additional suggestions for improvement; among those providing recommendations, the most common suggestions included improving toilet cleanliness and water facilities (15, 3.0%), emergency and interdepartmental bed availability (14, 2.8%), cleanliness and insect control (12, 2.4%), and services for patients' relatives (12, 2.4%).

Overall satisfaction with hospital services was high. For OPD services, 257 (51.4%) participants rated overall management as excellent, 191 (38.2%) as good, and 52 (10.4%) as average or below average (Table *1*, Figure *1*). Similarly, 226 (45.2%) rated IPD management as excellent, 213 (42.6%) as good, and 61 (12.2%) as average or below average (Table *2*, Figure *1*). Regarding the overall quality of treatment received across OPD and IPD services, 244 (48.8%) participants rated the services as excellent, 208 (41.6%) as good, and only 48 (9.6%) as average or below average (Table *3*, Figure *1*). Across disease categories, excellent OPD satisfaction ranged from 18/49 (36.7%) among patients with multiple diseases to 11/16 (68.8%) among trauma patients (Table *1*), while excellent IPD satisfaction ranged from 15/49 (30.6%) to 7/16 (43.8%) (Table *2*).

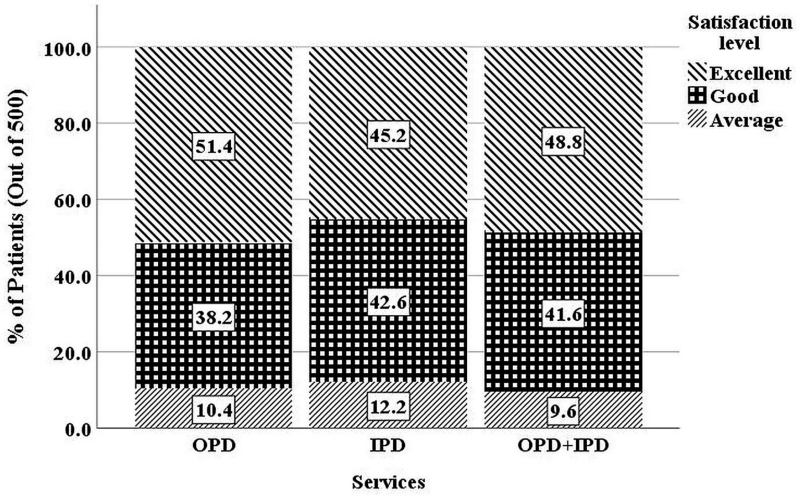


FIGURE 1: Distribution of the satisfaction level among OPD, IPD and overall in study patients (N=500)

OPD: Outpatient Department; IPD: Inpatient Department

Participant Characteristics	Overall Satisfaction with OPD and IPD Services (N=500)					
	≤Average [48,	Good [208,	Excellent [244,	Total [500,	Test	p-

	9.6%]	41.6%]	48.8%]	100%]	Statistics	value
Distance between home and SGPGI (in km)	235.9 (169.2)	239.6 (187.3)	252.7 (183.6)	245.6 (183.6)	1.583	0.698
Age (in Years)	44.77 (18.51)	39.77 (18.93)	41.93 (19.45)	41.31 (19.17)	0.359	0.206
Unemployed (n=468)						
Yes	20 (41.7%)	81 (38.9%)	115 (47.1%)	216 (43.2%)	3.659	0.160
No	26 (54.2%)	114 (54.8%)	112 (45.9%)	252 (50.4%)		
Getting treatment in SGPGI						
<1 Year	34 (70.8%)	142 (68.3%)	161 (66.0%)	337 (67.4%)	0.552	0.759
>=1 Year	14 (29.2%)	66 (31.7%)	83 (34.0%)	163 (32.6%)		
Reason for admission						
Multiple	8 (16.7%)	26 (12.5%)	15 (6.1%)	49 (9.8%)	14.148	0.166
Cancer	2 (4.2%)	18 (8.7%)	20 (8.2%)	40 (8.0%)		
Kidney	14 (29.2%)	36 (17.3%)	52 (21.3%)	102 (20.4%)		
Trauma	0 (0.0%)	8 (3.8%)	8 (3.3%)	16 (3.2%)		
Neurological	8 (16.7%)	33 (15.9%)	40 (16.4%)	81 (16.2%)		
Others	16 (33.2%)	87 (41.8%)	109 (44.7%)	212 (42.4%)		
Gender						
Male	27 (56.2%)	112 (53.8%)	145 (59.4%)	284 (56.8%)	1.431	0.489
Female	21 (43.8%)	96 (46.2%)	99 (40.6%)	216 (43.2%)		
Marital Status						
Married	39 (81.2%)	162 (77.8%)	185 (75.9%)	386 (77.2%)	1.377	0.848
Unmarried	8 (16.7%)	44 (21.2%)	55 (22.5%)	107 (21.4%)		
Others	1 (2.1%)	2 (1.0%)	4 (1.6%)	7 (1.4%)		
Area of Residence						
Urban	13 (27.1%)	85 (40.9%)	93 (38.1%)	191 (38.2%)	3.139	0.208
Rural	35 (72.9%)	123 (59.1%)	151 (61.9%)	309 (61.8%)		
First Visit to SGPGI						
Yes	28 (58.3%)	117 (56.2%)	137 (56.1%)	282 (56.4%)	0.081	0.960
No	20 (41.7%)	91 (43.8%)	107 (43.9%)	218 (43.6%)		
Education						
Graduate and Above	20 (41.7%)	89 (42.8%)	79 (32.4%)	188 (37.6%)	5.562	0.062
Below graduate	28 (58.3%)	119 (57.2%)	165 (67.6%)	312 (62.4%)		
Monthly Family Income (in Rupees) (n=377)						
<=9226	15 (31.3%)	54 (26.0%)	64 (26.2%)	133 (26.6%)	13.625	0.628
9227-27648	9 (18.8%)	40 (19.2%)	53 (21.7%)	102 (20.4%)		
27649-46089	7 (14.6%)	34 (16.3%)	25 (10.2%)	66 (13.2%)		
≥46090	10 (20.8%)	33 (15.9%)	33 (13.5%)	76 (15.2%)		
Health Insurance (n=464)						
Yes	8 (16.7%)	20 (9.6%)	31 (12.7%)	59 (11.8%)	2.686	0.261

No	35 (72.9%)	176 (84.6%)	194 (79.5%)	405 (81.0%)		
Ayushman Bharat/ Treatment assistance (n=478)						
Yes	20 (41.7%)	61 (29.3%)	106 (43.4%)	187 (37.4%)	9.486	0.009
No	27 (56.2%)	136 (65.4%)	128 (52.5%)	291 (58.2%)		

TABLE 3: Distribution of participant characteristics by overall satisfaction with OPD and IPD services (N=500)

Data are presented as mean (standard deviation) and compared using one-way analysis of variance (ANOVA). Categorical data are presented as numbers (%) and compared using the chi-square test. F-statistic and chi-square (χ^2) statistic were calculated for the one-way ANOVA and chi-square test, respectively. A P-value of less than 0.05 was considered statistically significant.

Similarly, approximately half of the patients across most disease categories rated the overall quality of treatment (OPD+IPD) as excellent, with the highest proportions observed among patients with cancer (20/40, 50%) and trauma (8/16, 50.0%). Most demographic and clinical characteristics, including age, gender, marital status, residence, education, family income, distance from the hospital, duration of treatment, first visit, disease category, and health insurance status, were not significantly associated with satisfaction across any of the three outcomes. The only significant association was observed for Ayushman Bharat/treatment assistance, where beneficiaries were more likely to report excellent satisfaction with IPD services (96/187: 51.4% vs. 120/291: 41.2%; P=0.032) (Table *2*), OPD services (106/187: 56.6% vs. 142/291: 48.8%; P=0.035) (Table *1*), and overall hospital services (106/187: 56.7% vs. 128/291: 44%; P=0.009) (Table *3*). Employment status was also associated with overall satisfaction (P=0.045), with unemployed participants reporting higher rates of excellent ratings than employed participants (115/216: 53.2% vs. 112/252: 44.4%) (Table *3*).

Multivariable binary logistic regression analyses (Tables *4*-*6*) were conducted to identify independent predictors of patient satisfaction with OPD, IPD, and overall (OPD + IPD) services. Variables found to be statistically significant in the respective univariate analyses (Tables *1*-*3*) were included in the multivariable models.

In Table *4*, receiving adequate information from the help desk was associated with higher OPD satisfaction (OR = 3.58; 95% CI: 1.54-8.31; p = 0.003). A positive parking experience also increased the likelihood of satisfaction (OR = 4.04; 95% CI: 1.57-10.40; p = 0.004). The experience with the senior doctor was the strongest predictor; a positive experience was associated with significantly higher satisfaction (OR = 15.67; 95% CI: 6.72-36.54; p < 0.001). Ease of obtaining cross-consultation appointments was also associated with higher satisfaction (OR = 2.73; 95% CI: 1.13-6.62; p = 0.026). Similarly, a positive experience regarding the ease of obtaining necessary documentation (requisition printouts) for tests increased satisfaction (OR = 3.03; 95% CI: 1.31-7.02; p = 0.010) among OPD patients.

Variables	Adjusted Odds ratio (aOR)	95% Confidence Interval		P-value
		Lower	Upper	
Information received from the help desk	3.58	1.54	8.31	0.003
Experience during the parking of the vehicle	4.04	1.57	10.40	0.004
Experience with a senior doctor in OPD	15.67	6.72	36.54	<0.001
Patient appointment for cross-consultations from one doctor to another	2.73	1.13	6.62	0.026
Experience at the time of receiving the printout of investigations requisition from the counter	3.03	1.31	7.02	0.010

TABLE 4: Predictors of satisfaction among patients after attending OPD (N=500)

OPD: Outpatient Department. Multivariable binary logistic regression analysis was used. A P-value of <0.05 was considered significant.

In Table 5, a positive hospital admission experience was significantly associated with IPD satisfaction; the likelihood of satisfaction was 2.23 times higher with a positive experience compared to a poor one (OR = 2.23; 95% CI: 1.13-4.43; p = 0.022). A positive experience with nursing staff was also associated with higher satisfaction (OR = 2.37; 95% CI: 1.15-4.86; p = 0.019). Patients who had a positive experience with patient-assisting staff (patient helpers) were 4.22 times more likely to be satisfied (OR = 4.22; 95% CI: 1.99-8.96; p < 0.001). The strongest predictor was a positive treatment experience in the medicine or surgery department, which was associated with an 8.18 times higher likelihood of satisfaction (OR = 8.18; 95% CI: 3.82-17.53; p < 0.001). Overall, the treatment experience was the strongest independent predictor of satisfaction among IPD patients.

Variables	Adjusted Odds ratio (aOR)	95% Confidence Interval		P value
		Lower	Upper	
Experience during patient admission in the IPD	2.23	1.13	4.43	0.022
Experience with the nursing staff during the IPD stay	2.37	1.15	4.86	0.019
Experience with the patient helpers during the IPD stay	4.22	1.99	8.96	<0.001
If patients were admitted in the medicine or surgery department, how was the experience with the received treatment?	8.18	3.82	17.53	<0.001

TABLE 5: Predictors of satisfaction among patients after attending IPD (N=500)

IPD: Inpatient Department. Multivariable binary logistic regression analysis was used. A P-value of <0.05 was considered significant.

As shown in Table 6, receiving adequate information from the help desk was associated with higher satisfaction with overall (OPD+IPD) services (OR = 8.26; 95% CI: 2.24-30.45; p = 0.002). A positive experience at the cash counter (OR = 5.53; 95% CI: 1.39-22.07; p = 0.015) and good cleanliness services (OR = 4.76; 95% CI: 1.14-19.76; p = 0.032) were also significant predictors. Patients who had a positive experience with patient helpers during their IPD stay were 28.35 times more likely to be satisfied (OR = 28.35; 95% CI: 6.78-118.61; p < 0.001), while a positive experience at the time of discharge increased this likelihood by 6.48 times (OR = 6.48; 95% CI: 1.63-25.77; p = 0.008). The strongest predictor was a positive treatment experience in the medicine or surgery department, which was associated with a 43.60-fold higher likelihood of satisfaction (OR = 43.60; 95% CI: 9.64-197.27; p < 0.001) among overall services (OPD and IPD).

Variables	Adjusted Odds ratio (aOR)	95% Confidence Interval		P value
		Lower	Upper	
Information received from the help desk	8.26	2.24	30.45	0.002
Experience at the time of depositing money at the cash counter	5.53	1.39	22.07	0.015
Services of sanitation / cleaning	4.76	1.14	19.76	0.032
Experience with the patient helpers during the IPD stay	28.35	6.78	118.61	<0.001
Experience at the time of patient discharge from IPD	6.48	1.63	25.77	0.008
If patients were admitted in the medicine or surgery department, how was the experience with the treatment received?	43.60	9.64	197.27	<0.001

TABLE 6: Predictors of overall satisfaction among patients from the combined variables of outpatient and inpatient department (N=500)

IPD: Inpatient department. Multivariable binary logistic regression analysis was used. A P-value of <0.05 was considered significant.

Discussion

The findings of this study demonstrate a strong positive appraisal of clinical care alongside key non-clinical friction points, offering actionable insights for institutional quality improvement at the institute. The majority of patients were from rural areas, of lower-income status, and travelled long distances to seek specialised care for complex conditions like nephrological, neurological, and gastrointestinal disorders. Long journeys and low financial reserves heighten non-medical strain (e.g., travel expenses, lost wages, overnight accommodation), making institutional efficiency crucial. Despite low private health insurance coverage, financial welfare initiatives such as the Ayushman Bharat scheme served a substantial portion of the population, underlining the hospital's critical role as a socio-economic safety net.

In line with available literature assessing satisfaction in tertiary care settings, overall patient satisfaction was high with clinical expertise, technical competency and nursing care [5, 9, 14]. Conversely, identified areas for improvement focused almost entirely on administrative and environmental factors rather than clinical capability. The main friction points included delays during registration, billing, and interdepartmental transfers, which prolonged patient wait times, consistent with global findings on operational bottlenecks in public hospitals [6, 11]. Interactions with security and support staff heavily influenced patient perceptions during initial facility entry, indicating a need for soft-skills training [12]. Facilities such as toilet cleanliness, drinking water supply, and waiting areas for patient relatives remained persistent concerns, mirroring domestic findings from public teaching institutes [15]. Across diverse disease categories and specialities, overall satisfaction remained uniform, suggesting that clinical delivery is governed by standardised institutional protocols rather than department-specific variations.

Interestingly, socio-demographic factors like age, gender, education, and distance were largely unassociated with satisfaction levels. However, employment status and welfare scheme utilisation (Ayushman Bharat) showed statistically significant variations. Unemployed patients reported higher satisfaction ratings, likely reflecting lower pre-service expectations or greater relief at receiving specialised tertiary care at subsidised costs. Conversely, non-beneficiaries of Ayushman Bharat reported a higher proportion of excellent satisfaction compared to scheme beneficiaries. This counter-intuitive trend may stem from administrative delays and documentation hurdles often required during the verification, pre-authorisation, and claim-processing procedures of state health coverage plans, which can temporarily disrupt seamless service delivery. Our findings align closely with the systematic review by Ferreira et al. [11], which established medical competence, provider communication, and administrative efficiency as the main determinants of patient-perceived hospital quality. By evaluating both OPD and IPD sectors concurrently, this study confirms that while clinical excellence secures overall patient trust, operational streamlining and facility sanitation dictate the friction points in the overall patient journey [11].

This study used a validated, pre-tested questionnaire, a robust sample size exceeding statistical power requirements, and representation across diverse medical and surgical subspecialties. However, as a single-centre cross-sectional study conducted at an apex referral institute, findings may reflect a positive selection bias, as patients seeking specialised opinions may demonstrate higher tolerance for administrative delays in exchange for expert clinical care.

Multivariable regression analysis identified several independent predictors of patient satisfaction. For OPD patients, satisfaction was directly linked to receiving accurate information from the help desk, positive experiences regarding parking and interactions with senior doctors, ease of securing cross-consultation appointments, and the timely receipt of paperwork for necessary tests. For IPD patients, key factors included the admission experience, interactions with nursing staff and patient attendants, and the treatment experience in the medicine or surgery departments; the overall treatment experience in the IPD emerged as the strongest predictor. A combined analysis of OPD and IPD variables (on same patients) revealed that accurate information from the help desk, positive experiences with cash counters and cleanliness, assistance for patient attendants, a smooth discharge process, and a good treatment experience in the medicine or surgery departments were all independent predictors of patient satisfaction of overall services.

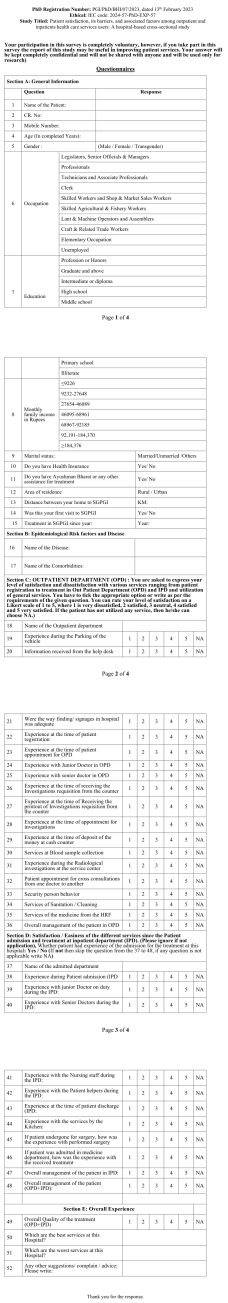
This study reveals that patient satisfaction is influenced by various hospital services, such as information provided by the help desk, interactions with healthcare providers, support from nursing and caregiving staff, cleanliness, administrative services, the discharge process, and the overall treatment experience. These findings align with previous studies, which reported that satisfaction among both OPD and IPD patients was linked to interactions with healthcare providers, the availability of information, the hospital environment, cleanliness, and the overall experience during the hospital stay. Similarly, Larrabee et al. identified nursing care as a crucial factor in inpatient satisfaction [19]. Regression-based research on outpatients also indicates that interactions with healthcare staff, waiting times, and the hospital environment play a significant role in shaping perceptions of healthcare services. Thus, the current findings confirm that patient satisfaction depends on multiple facets; it relies not only on the quality of clinical care but also on the efficiency and responsiveness of the hospital's support services.

In this study, factors such as the treatment experience, nursing and support staff, communication and information provision, cleanliness, and administrative and hospital procedures were identified as key drivers of patient satisfaction across OPD, IPD, and mixed services. These findings align with previous studies [6], which reported that the satisfaction of both OPD and IPD patients is influenced by caregivers, nursing and medical care, the hospital environment, information provision, waiting times, and cleanliness. Our results align with the findings of the study by Larrabee et al., which identified nursing care as a key factor in patient satisfaction [19]. Using regression analysis on outpatients, the study by Vural et al. identified healthcare professionals' communication skills and waiting times as key factors contributing to a positive patient experience [20]. Consistent with these findings, our study also revealed that the information and interaction provided by the help desk were significant factors influencing patient satisfaction.

Conclusions

This study demonstrates a high level of patient satisfaction with healthcare services at this tertiary care hospital in northern India. Over 90% of respondents rated the quality of care as 'very good' or 'good'. Clinical care, specifically the attention provided by doctors, was the primary driver of positive patient experiences across both Outpatient (OPD) and Inpatient (IPD) departments. Patient satisfaction remained consistently high across various medical conditions and specialties. However, the study also identified challenges, such as lengthy administrative procedures, overcrowding at reception and security areas, and deficiencies in basic amenities particularly restroom cleanliness and the availability of drinking water. These shortcomings disproportionately affect economically and socially disadvantaged patients who travel from afar for treatment. Addressing these operational issues by streamlining administrative processes, upgrading infrastructure, and incorporating regular patient feedback is essential. Doing so will ensure efficient, equitable, and truly patient-centric healthcare services in public tertiary-care institutions, complementing their clinical excellence.

Appendices



PhD Registration Number: PGI/PhD/RH/07/2021, dated 13th February 2023
Ethical EC code: 2024-57-PhD-ESP-57
Study Titled: Patient satisfaction, its barriers, and associated factors among outpatient and inpatients health care services users: A hospital-based cross-sectional study

Your participation in this survey is completely voluntary, however, if you take part in this survey, the report of this study may be useful in improving patient services. Your answers will be kept completely confidential and will not be shared with anyone and will be used only for research)

Questionnaires

Section A: General Information			
	Question		**Response**
1	Name of the Patient:		
2	CR. No:		
3	Mobile Number:		
4	Age (In completed Years):		
5	Gender :		(Male / Female / Transgender)
6	Occupation	Legislators, Senior Officials & Managers	
		Professionals	
		Technicians and Associate Professionals	
		Clerk	
		Skilled Workers and Shop & Market Sales Workers	
		Skilled Agricultural & Fishery Workers	
		Lant & Machine Operators and Assemblers	
		Craft & Related Trade Workers	
		Elementary Occupation	
		Unemployed	
7	Education	Profession or Honors	
		Graduate and above	
		Intermediate or diploma	
		High school	
		Middle school	

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		Primary school	
		Illiterate	
8	Monthly family income in Rupees	>9326	
		9232-27640	
		27854-46889	
		46895-68961	
		68965-92103	
		92,181-104,370	
		>104,376	
9	Marital status:		Married/Unmarried /Others
10	Do you have Health Insurance		Yes/ No
11	Do you have Ayushman Bharat or any other assistance for treatment		Yes/ No
12	Area of residence		Rural / Urban
13	Distance between your home to SGPGI		KM:
14	Was this your first visit to SGPGI		Yes/ No
15	Treatment in SGPGI since year:		Year:

Section B: Epidemiological Risk factors and Disease		
16	Name of the Disease:	
17	Name of the Comorbidities:	

Section C: OUTPATIENT DEPARTMENT (OPD) : You are asked to express your level of satisfaction and dissatisfaction with various services resulting from patient registration to treatment in Our Patient Department (OPD) and Your actual utilization of services in OPD. Please tick the appropriate response (OPD) to the actual requirements of the given question. You can rate your level of satisfaction on a Likert scale of 1 to 5, where 1 is very dissatisfied, 2 satisfied, 3 neutral, 4 satisfied and 5 very satisfied. If the patient has not utilized any service, then he/she can choose NA.

18	Name of the Outpatient department						
19	Experience during the Parking of the vehicle	1	2	3	4	5	NA
20	Information received from the help desk	1	2	3	4	5	NA

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21	Were the way finding/ signages in hospital was adequate	1	2	3	4	5	NA
22	Experience at the time of patient registration	1	2	3	4	5	NA
23	Experience at the time of patient appointment for OPD	1	2	3	4	5	NA
24	Experience with Junior Doctor in OPD	1	2	3	4	5	NA
25	Experience with senior doctor in OPD	1	2	3	4	5	NA
26	Experience at the time of receiving the investigations requisition from the counter	1	2	3	4	5	NA
27	Experience at the time of Receiving the payment for investigations requisition from the counter	1	2	3	4	5	NA
28	Experience at the time of appointment for investigations	1	2	3	4	5	NA
29	Experience at the time of deposit of the money at cash counter	1	2	3	4	5	NA
30	Services at Blood sample collection	1	2	3	4	5	NA
31	Experience during the Radiological investigations at the service center	1	2	3	4	5	NA
32	Patient appointment for cross consultations from one doctor to another	1	2	3	4	5	NA
33	Security person behavior	1	2	3	4	5	NA
34	Services of Sanitation / Cleaning	1	2	3	4	5	NA
35	Services of the medicine from the HRF	1	2	3	4	5	NA
36	Overall management of the patient in OPD	1	2	3	4	5	NA

Section D: Satisfaction / Easiness of the different services since the Patient admission and treatment at inpatient department (IPD). (Please ignore if not admitted in IPD) (Have you ever been admitted in the IPD in the past visit of this hospital: Yes / No (if no then skip the question from the 37 to 48, if any question is not applicable write NA)

37	Name of the admitted department						
38	Experience during Patient admission (IPD)	1	2	3	4	5	NA
39	Experience with junior Doctor on duty during the IPD.	1	2	3	4	5	NA
40	Experience with Senior Doctors during the IPD.	1	2	3	4	5	NA

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41	Experience with the Nursing staff during the IPD:	1	2	3	4	5	NA
42	Experience with the Patient helpers during the IPD:	1	2	3	4	5	NA
43	Experience at the time of patient discharge (IPD:	1	2	3	4	5	NA
44	Experience with the services by the Kitchen:	1	2	3	4	5	NA
45	If patient undergone for surgery, how was the experience with performed surgery	1	2	3	4	5	NA
46	If patient was admitted in medicine department, how was the experience with the received treatment	1	2	3	4	5	NA
47	Overall management of the patient in IPD:	1	2	3	4	5	NA
48	Overall management of the patient (OPD+IPD):	1	2	3	4	5	NA
	Section E: Overall Experience						
49	Overall Quality of the treatment (OPD+IPD)	1	2	3	4	5	NA
50	Which are the best services at this Hospital?						
51	Which are the worst services at this Hospital?						
52	Any other suggestions/ complain / advice: Please write:						

Thank you for the response.

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FIGURE 2: Study questionnaires used for data collection

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Sanjay Gandhi PGI Lucknow issued approval IEC code: 2024-57-PhD-EXP-57. As per the above recommendations of IEC, the project/trial with documents has been reviewed by the Committee, and based on the documents submitted by PI, the Committee made recommendation: Approved. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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Artificial intelligence (AI) tools, including ChatGPT, Claude, or other generative AI tools, were not used in the preparation or writing of this manuscript.

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