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Patient Satisfaction Levels and Determinants among Inpatients in Tertiary Hospitals in Hayatabad, Peshawar

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ABSTRACT

Quality of healthcare is assessed by patient satisfaction, which is a very important factor. There has been very little research on the reasons for inpatient satisfaction referring to tertiary healthcare centers in Peshawar, Pakistan. **Objectives:** To find out the factors and levels of inpatient satisfaction in tertiary healthcare setups in Hayatabad, Peshawar. **Methods**: A cross-sectional comparative study was done in Hayatabad, Peshawar, from March to August 2025. Three public hospitals and three private hospitals were selected for this purpose. A convenience sample of 664 adults was collected through the proportionate method of sampling. Data analysis was performed with SPSS. **Results:** Overall, patient satisfaction was low – only approximately 13.9% of patients reported being satisfied. Patients who received services in private hospitals had a higher satisfaction level (16.9%) compared to patients who were treated in public hospitals (12.0%) (p=0.050). Patient satisfaction also had a positive relationship with socioeconomic status, with a higher number of middle-class patients being satisfied (30.4%) (p=0.001). Patients' ratings for cleanliness in private hospitals were higher (p=0.045). Education, occupation, and place of residence were significant indicators of patients' ratings of quality, efficiency, and cost (p<0.050). **Conclusions:** Patient satisfaction levels among tertiary hospitals in Hayatabad, Peshawar is low; therefore, these centers need to improve affordability, cleanliness, and the efficiency of service delivery for patient satisfaction and patient-centered services.

INTRODUCTION

Patient satisfaction is universally accepted as an indicator of quality in healthcare, as it encompasses the patient's experiences with communication, care, environment, responsiveness, and clinical outcomes [1]. Patient satisfaction also correlates most highly with compliance, hospital utilization, etc., and as a result, has become an important metric for evaluating health systems [2]. In a dual health system context such as Pakistan, there are private facilities and public tertiary hospitals that serve a large population. Patient experiences vary between the two sectors, given differences in costs, staffing, infrastructure, and governance [3]. International research lends support to the finding that the private facility is ranked better on staff courtesy, promptness, and ward environment, whereas public facilities are valued more regarding accessibility and affordability [4, 5]. International studies consistently demonstrate that inpatient satisfaction differs between public and private healthcare systems and is influenced by factors such as service quality, cleanliness, staff responsiveness, affordability, and efficiency. Evidence shows that patients admitted to private hospitals generally report higher

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satisfaction levels due to better infrastructure, shorter waiting times, cleaner environments, and improved interpersonal care, while public hospitals are more frequently preferred for affordability and accessibility [6, 7]. Socioeconomic status, education level, and place of residence have also been identified as significant determinants of patient satisfaction across diverse settings, with urban and educated patients reporting higher satisfaction compared to rural and less-educated populations [8, 9]. Several studies conducted in Pakistan have investigated the satisfaction of patients in both sectors, producing mixed findings. Khattak *et al.* from Peshawar found that overall satisfaction was much higher in private hospitals than public hospitals, but both groups still reported being dissatisfied with the amount of time spent with the doctor during the visit [10]. In another comparative study from Peshawar, the authors similarly reported higher satisfaction levels in private hospitals across several domains; however, affordability was an important predictor for patients' preference [11]. A multicenter study from Karachi indicated that access and affordability were the greatest contributors to patient satisfaction in public hospitals, while private hospitals performed significantly better across the interpersonal and environmental domains [12]. In Pakistan, Hussain and others determined that there was less overall satisfaction than at private hospitals, which was explained by issues of overcrowding, waiting time, and cleanliness [13]. Another research in Ghana found that in hospitals, private hospitals outperformed public facilities' environmental factors and attitude of staff, and that public facilities were preferred based on cost [14]. Evidence from other South Asian countries adds to the contrast of better satisfaction and care in the private hospital sector. For example, a study from Bangladesh revealed that significantly more patients in private hospitals were satisfied with inpatient care (75%) compared to patients at public hospitals (51%). The primary factors influencing patient satisfaction were affordability, length of stay, and ward environment [15]. Looking at Cyprus, Talias *et al.* found that private hospital patients were also significantly more satisfied than public hospital patients regarding the hospital environment and staff responsiveness, although public hospitals were preferred for time-sensitive medical care [4]. Despite these studies, the evidence base regarding comparative inpatient satisfaction in Khyber Pakhtunkhwa and specifically at the city of Peshawar is thin. Tertiary hospitals in Peshawar offer care to the large metropolitan community, as well as the surrounding tribal districts and border-crossing patients from Afghanistan. Past patient satisfaction studies conducted in Peshawar were limited to single hospitals (or only evaluated outpatients) and are lacking in comparative evidence that captures inpatient satisfaction across both public and private hospital sectors [10, 11]. Patient satisfaction is a key indicator of healthcare quality and an essential measure for identifying gaps in service delivery. It reflects patients' perceptions of the care they receive and guides efforts to improve quality, efficiency, and equity in healthcare systems.

In Peshawar, a major tertiary care hub for Khyber Pakhtunkhwa and neighboring regions, there is limited evidence on inpatient satisfaction, as most studies in Pakistan have focused on outpatient settings. Understanding the levels of inpatient satisfaction and the factors that influence it is critical for enhancing patient-centered care and informing policy decisions. This study aims to evaluate whether these determinants can provide valuable insights for healthcare providers and administrators to improve service delivery, resource allocation, and overall patient experience in tertiary hospitals of Hayatabad, Peshawar.

METHODS

A cross-sectional study took place from 1st March 2025 to 30th August 2025. Data were collected from six tertiary care hospitals situated in Hayatabad, Peshawar, Khyber Pakhtunkhwa, Pakistan — 3 representing the public sector and the other 3 the private sector. Ethical approval for the study was granted by the Institutional Review Board of the Northwest School of Medicine before the study began (Approval Number: IRB&EC/2025-GH/0306). Verbal informed consent was obtained from all participants, and they were assured that their anonymity, confidentiality, and voluntary participation would be protected. The study population included adult inpatients who were admitted to the medicine and allied, as well as surgical and allied wards of the selected hospitals. The sample size was calculated using Open Epi software with a total population size (N) of 1,000,000, hypothesized frequency of the outcome factor (p) of 50% ± 5, and fixed confidence limit (d) of 5% with a 99% confidence interval including the finite population correction factor (FPC). The sample size was determined using the following standard formula: n = [DEFF*Np(1-p)]/[(d2/Z21-α/2*(N-1)+p*(1-p)]. A total of 664 participants were recruited for the study using a convenience sampling technique. Adult patients admitted more than 24 hours and who were able to understand and respond to the survey instrument met the inclusion criteria. Exclusion criteria were for critically ill patients, impaired cognition, and refusal to participate. Data collection took place systematically in hospital wards. Four members of the research team were involved in data collection. After the study purpose was explained to the patients and they agreed to participate, the researchers gave them the survey instrument to complete. The study tool was

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developed following a comprehensive literature review [13-15]. Relevant variables identified from the literature were incorporated into the design of the tool. It was then reviewed and refined by subject specialists to ensure content validity. Subsequently, the tool was pilot tested on a sample group to assess its clarity and to identify any difficult or missing variables. The data collection tool comprised several domains, including demographic information and study-specific variables. These variables covered two main areas: satisfaction with physical facilities (such as cleanliness, toilets, food, lighting, cooling, diagnostic services, medicine availability, and affordability) and satisfaction with staff behavior (including doctors, nurses, paramedical staff, ward attendants, security, and administrative personnel). Responses were recorded on a three-point scale: Yes, No, and I Don't Know. The data collection tool underwent a pilot study on 30 patients before the main study, to assess clarity and reliability, and minor modifications were made. Data were entered and analyzed using IBM SPSS Statistics (Version 25), and descriptive statistics were used to calculate frequencies and percentages. Chi-square test statistical analysis was conducted for the comparison between public and private hospitals, with statistical significance established at $p<0.050$.

RESULTS

A total of 664 patients participated in the study. Of these, 62.7% were admitted in public hospitals and 37.3% in private hospitals. Male participants constituted 60.1%, while female made up 39.9%. More than half of the participants were from urban areas (55.9%), while 44.1% were from rural regions. Regarding education, one-third were illiterate (33.3%), while 15.5% were graduates and 3.5% postgraduates. The largest occupational group was skilled workers (28.5%), followed by housewives (18.7%). Socioeconomically, 13% belonged to the upper class (Monthly income>200,000 PKR), 59.5% belonged to the middle class (Monthly income from 100,000-200,000 PKR), and 27.6% belonged to the lower class (Monthly income <100,000 PKR) (Table 1).

Table 1: Socio-Demographic Characteristics of Study Participants (n=664/100%)

Variables	Categories	Frequency (%)
Health Setup	Public	416 (62.7%)
	Private	248 (37.3%)
Gender	Male	399 (60.1%)
	Female	265 (39.9%)
Place of Residence	Urban	371 (55.9%)
	Rural	293 (44.1%)
Education	Illiterate	221 (33.3%)
	Primary Education	133 (20.0%)
	High School	109 (16.4%)
	Secondary Education	75 (11.3%)
	Graduate	103 (15.5%)
	Post-Graduate	23 (3.5%)
Occupation	Unskilled	79 (11.9%)
	Skilled	189 (28.5%)
	Employed	137 (20.6%)
	Unemployed	64 (9.6%)
	Housewife	124 (18.7%)
	Student	71 (10.7%)
Socio-economic Status	Upper Class	86 (13.0%)
	Middle Class	395 (59.5%)
	Lower Class	183 (27.6%)
Department	Medicine	330 (50.7%)
	Surgery	334 (50.3%)

Overall, only 13.9% of patients reported being satisfied, while 86.1% expressed dissatisfaction with their hospital care experience. Satisfaction was slightly higher in private hospitals (16.9%) than public hospitals (12.0%), although this difference was borderline significant ($p=0.050$), indicating generally low satisfaction across tertiary hospitals, suggesting systemic challenges affecting inpatient care across both healthcare sectors in Hayatabad, Peshawar (Table 2).

Table 2: Association between Level of Satisfaction and Type of Health Setup

Satisfied	Health-Setup		Total	p-value
	Public	Private		
Type of Health Setup				
No	366	206	572	0.050
Yes	50	42	92	
Total	416	248	664	

Patient satisfaction differed significantly according to socioeconomic status ($p=0.001$). Among middle-class patients, 30.4% reported satisfaction — notably higher than the upper class (11.6%) and lower class (9.8%) (Table 3).

Table 3: Association Between Level of Satisfaction and Socio-Economic Status of Participants

Satisfied	Socio-economic Status			Total	p-value
	Upper Class	Middle Class	Lower Class		
Type of Health Setup					
No	76	275	165	572	0.001
Yes	10	120	18	92	
Total	86	395	183	664	

Patient satisfaction was assessed through five key domains: Availability of Resources, Cost of Services, Cleanliness, Quality of Services, and Efficiency of Services. Each domain was analyzed in relation to hospital type and socio-demographic factors to identify differences between public and private healthcare centers. A significant association was found between the availability of resources and both education level ($p=0.004$) and

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department (p=0.022). Graduates and high school–educated patients perceived better resource availability compared to illiterate participants. Patients admitted to medicine departments (89.1%) reported greater resource availability than those in surgery (68.3%). Cost perception differed significantly by education (p<0.001), occupation (p=0.001), and socioeconomic status (p=0.002). Cleanliness showed a significant association with both residence (p-value<0.001) and hospital type (p=0.045). Urban patients (78.7%) rated facilities as cleaner than rural patients (65.9%). Private hospitals were perceived to maintain higher cleanliness standards (77.0%) compared to public hospitals (70.7%). Private hospitals outperformed public hospitals in cleanliness (Table 4).

Table 4: Association between Availability of Resources, Education, Department, Cost, Sociodemographic Factors, Cleanliness, and Setup/ Residence Factors

Variables		No	Yes	Total	p-value
Availability of Resources					
Education	Illiterate	25	196	221	0.004
	Primary	16	117	133	
	High School	6	103	109	
	Secondary	13	62	75	
	Graduate	14	89	103	
	Post-Graduate	8	15	23	
Department	Medicine	36	294	330	0.022
	Surgery	46	228	334	
Cost and Sociodemographic Factors					
Cost		**Low Cost**	**High Cost**	**Total**	**p-value**
Education	Illiterate	52	169	221	<0.001
	Primary	16	117	133	
	High School	15	94	109	
	Secondary	28	47	75	
	Graduate	25	78	103	
	Post-Graduate	5	18	23	
Occupation	Unskilled	15	64	79	0.001
	Skilled	36	153	189	
	Employed	26	111	137	
	Unemployed	26	38	64	
	Housewife	18	106	124	
	Student	20	51	71	
Socioeconomic Status	Upper Class	7	79	86	0.002
	Middle Class	98	297	395	
	Lower Class	36	147	183	
Cleanliness and Setup / Residence Factors					
Cleanliness		**Unclean**	**Clean**	**Total**	**p-value**
Residence	Urban	79	292	371	<0.001
	Rural	100	193	293	
Health Setup	Public	122	294	416	0.045
	Private	57	191	248	

Perceived quality of services was significantly higher among urban, educated, and skilled patients (p<0.050). Urban residents, highly educated individuals, and skilled participants perceived quality services as more educated compared to rural, less-educated, and unskilled groups. The efficiency of services showed significant associations with place of residence (p-value = 0.001), education (p-value=0.012), and occupation (p-value=0.028), but not with departments (p-value=0.490) (Table 5).

Table 5: Association between Quality of Services and Sociodemographic Factors, Services and Sociodemographic/ Department Factors

Variables		Poor	Good	Total	p-value
Services and Sociodemographic Factors					
Residence	Urban	40	331	371	0.007
	Rural	52	241	293	
Education	Illiterate	34	187	221	0.014
	Primary	18	115	133	
	High School	11	98	109	
	Secondary	19	56	75	
	Graduate	7	96	103	
	Post-Graduate	3	20	23	
Occupation	Unskilled	17	62	79	0.042
	Skilled	24	165	189	
	Employed	13	124	137	
	Unemployed	14	50	64	
	Housewife	18	106	124	
	Student	6	65	71	
Services and Sociodemographic / Department Factors					
Factor Category		**Inefficient**	**Efficient**	**Total**	**p-value**
Residence	Urban	70	301	371	0.001
	Rural	110	183	293	
Education	Illiterate	46	175	221	0.012
	Primary	42	91	133	
	High School	31	78	109	
	Secondary	28	47	75	
	Graduate	18	85	103	
	Post-Graduate	7	16	23	
Occupation	Unskilled	18	61	79	0.028
	Skilled	51	138	189	
	Employed	38	99	137	
	Unemployed	18	46	64	
	Housewife	20	104	124	
	Student	27	44	71	
Department	Medicine	74	256	330	0.490
	Surgery	98	236	334	

DISCUSSION

The current study showed low overall inpatient satisfaction, with just 13.9% of patients being satisfied with the inpatient hospital stay, and the rest dissatisfied (86.1%). While satisfaction was somewhat higher in private hospitals (16.9%) versus public hospitals (12.0%), it was not statistically significant. In contrast, Begum *et al.* in Bangladesh reported 75% satisfaction in private hospitals,

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compared to 51% in public hospitals [15], and Shaikh *et al.* in India found that the majority of participants (60%) in private hospitals rated high service quality practices in hospitals [16]. However, Ozam *et al.* in Saudi Arabia reported 84% satisfaction in private hospitals, and 69% in public hospitals [17]. The consistently higher satisfaction levels than those of the current study are a potential indication of systemic limitations on care delivery in Pakistan's tertiary care system, including congestion, workforce shortage, and inconsistent service quality in overall care, which lowers satisfaction levels in both sectors. Satisfaction in our current study was found to be statistically significantly influenced by socioeconomic status (p=0.001), with middle-class patients reporting the highest satisfaction (30.4%), and upper (11.6%) and lower classes (9.8%) reporting less satisfaction. The study sees the same associations in Bangladesh and India, where middle-income patients were the most satisfied, due to affordability and realistic expectations [15, 16]. Differences indicate that satisfaction determinants are likely different along the healthcare financing mechanism; for instance, in out-of-pocket models (Pakistan and Bangladesh), cost may be a significant moderating factor. Education level was found to be an additional predictor, and there was elevated satisfaction expressed by graduates and those with high school education related to resource availability (p=0.004) and service quality (p=0.014), which is similar to the results captured by Dinsa *et al.* in Ethiopia that patients with education reported higher satisfaction levels associated with communication and coordination of care [18]. Shaikh *et al.* similarly identified that education improved a person's perception of technical quality and interaction with the provider [16]. Therefore, this reinforces that educated patients who are informed expect and value a systematic/effective pathway for their access to service delivery. Occupation had a meaningful impact on overall satisfaction related to cost, quality and efficiency (p<0.050) and satisfaction with skilled employed illustrated greater experiences compared to unskilled unemployed, with similar differences being found in India and China where individuals employed in the formal-sector reported significantly higher levels of satisfaction as a consequence of greater health literacy and financial resources available to them [16, 19]. This lends itself to the conclusion that socioeconomic empowerment distilled a better patient experience through improved communication and/or decreased clinically biased cost. In terms of residence, urban participants had significantly greater satisfaction with cleanliness (p-value<0.001), quality (p=0.007), and efficiency (p=0.001) as compared to rural inhabitants. This is consistent with studies from Saudi Arabia and Tanzania, where urban participants reported higher satisfaction due to familiarity with the hospital system and more access to information [17, 20]. The dissatisfaction found in rural areas in this study may suggest limited exposure to tertiary facilities and heightened expectations of services based on unequal access to healthcare previously. Cleanliness ranked higher than the majority of the themes in the services area, with private hospitals and urban patients reporting significantly higher levels of satisfaction (p=0.045). Begum *et al.* and Ozam *et al.* similarly identified the role of environmental hygiene in patient satisfaction as one of the strongest predictors of overall satisfaction [15, 17]. The relatively low levels of cleanliness perceived in public hospitals in Peshawar demonstrate structural limitations and overcrowding in facilities; this finding is similar to some of the findings regarding public facilities in India and Bangladesh. Cost perception has significant correlations for education (p-value<0.001), occupation (p=0.001), and socioeconomic class (p=0.002), where middle-class patients perceived lower costs for care. Studies from Bangladesh, China, and Tanzania have likewise suggested that affordability is the driver of some satisfaction, regardless of the quality of service witnessed [19, 20]. Despite general satisfaction levels reaching over 80%, the Chinese cohort's perception of cost remained the most significant predictor of dissatisfaction [15]. This parallels the Pakistani context, where private hospital users reported strain on their finances, despite an improved care experience. Perceived resources were viewed more positively relating to medicine departments and educated patients, as previously found in studies similar to Ethiopia and India, where resource adequacy (medication, diagnostic access, and availability of staff) positively related to patient satisfaction [18, 16]. In this study, reported surgical patients experienced some dissatisfaction in this regard, perhaps because of waiting for procedures to occur, along with a shortage of supply, in the public tertiary setting. Finally, service quality and efficiency- significantly influenced by prerequisite education and occupational work related to the education-expect responsiveness of the healthcare system. These similar relationships were also seen in the Laishram *et al.* study within Manipur, or Shekhawat *et al.* study in the hospital, with patient satisfaction questionnaires mentioned, in private hospitals with trained clinicians who could conduct the service delivery process more efficiently, patients' level of satisfaction was 70% or greater [21, 22]. The Peshawar participants who experienced an overall satisfaction degree of just 13.9% were nearly one quarter of the findings, suggesting that structural inefficiency of the healthcare system, rather than the experience or that specific interpersonal relationship with the healthcare system, remains a barrier

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for a patient-centered health system approach in Pakistan. Low patient satisfaction in similar contexts is often attributed to broader structural inefficiencies within the healthcare system rather than individual provider interactions[23, 24].

This study has many limitations. This one city investigation in Hayatabad, Peshawar, cannot be used to represent all the tertiary hospitals in Pakistan. Convenience sampling creates selection bias, whereas the cross-sectional design records satisfaction at a single time points only. There is no clinical outcome that is correlated with clinical outcomes, and the responses of the currently admitted patients are subject to the risk of social desirability bias. The fact that the private hospitals are underrepresented (37.3% in the hospital) might not be quite representative of the experiences of the private sector. The next directions should measure the satisfaction and clinical outcomes and implement the targeted interventions (cleanliness protocols, staff training, reduction of waiting time) with the help of pre-post designs. Research on health equity ought to focus on the reasons behind the low level of satisfaction reported by rural, less-educated, and lower-class patients.

CONCLUSIONS

This study concluded that among the tertiary level hospitals situated in the city of Peshawar, there was considerably low reported patient satisfaction overall, in both public and private hospitals. Patient characteristics (e.g., socioeconomic, educational, occupational, residential, etc.) were found to have different influences on patient experiences in terms of cost, cleanliness, quality, and efficiency. Middle-class, urban, and educated patients reported the most satisfaction, while the less educated or rural patients reported the most dissatisfaction. Overall, the results of the study indicate the need for system change and support overarching recommendations for improving cost, quality, and equity in inpatient hospital care.

Authors' Contribution

Conceptualization: ZU, SZ[1], SZ[2]
Methodology: ZU, MAB, MWA, HUK, AK, SZ[1], SZ[2]
Formal analysis: ZU, MAB, MWA, HUK, AK, SZ[1], SZ[2]
Writing and Drafting: ZU, SZ[1], SZ[2]
Review and Editing: ZU, MAB, MWA, HUK, AK, SZ[1], SZ[2]

All authors approved the final manuscript and take responsibility for the integrity of the work.

Conflicts of Interest

All the authors declare no conflict of interest.

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