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Patient Satisfaction Level and its Various Determinants in a Tertiary Care Hospital of Peshawar, Pakistan: A Cross-Sectional Study

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ABSTRACT

Patient satisfaction is a surrogate metric for quality of services provided by healthcare system. **Objective:** To assess patient satisfaction and associated factors in a major tertiary care hospital. **Methods:** This cross-sectional study was conducted at the Lady Reading Hospital (LRH), Peshawar, Pakistan. All patients admitted for indoor treatment for at least 2 days were enrolled through multistage sampling technique. Patients admitted to ICU, CCU, psychiatry or oncology wards and COVID-19 positivity were excluded. Patient satisfaction level was assessed with the Patient Satisfaction Questionnaire (PSQ)-18. Likert scale was utilized to evaluate patients' response, where the scale ranged from 1 (complete dissatisfaction) to 5 (complete satisfaction). Patients with cumulative score of ≥ 50 were classified as satisfied. **Results:** Of the total 384 patients enrolled, 199 (~52%) patients were older than 45 years of age, while the female to male ratio was 1.25:1. The number of satisfied patients was significantly higher than dissatisfied patients (313 vs. 71: $p < 0.01$). Highest number of patients were satisfied with the domain D7 (i.e., accessibility and convenience: 72%), followed by domain D6 (i.e., time spent with the doctor: 69%). A minimum number of patients were satisfied with the domain D2 (i.e., technical quality: 53%). Moreover, higher number of patients with age ≥45 years (~86%), female gender (~86%), with bachelor education (~100%) and patient admitted to medical and allied wards (~86%) expressed satisfaction. **Conclusion:** Overall, the study showed a high patient satisfaction at LRH, Peshawar.

INTRODUCTION

Patient satisfaction is a vital metric in evaluating services of healthcare system and eliminating claims of malpractice. Studies focused on evaluating patient satisfaction are increasing worldwide [1]. Healthcare providers are always interested in providing cost-effective facilities that can deliver superior and efficient medical services [2]. While a patient is in the hospital, the workflow coordinates both the safety of hospital staff and patients, and the quality of care they receive [3, 4]. To move forward, hospital administrators and healthcare professionals should consider key factors including the quality of patient care and specialty practices that create competency and capacity. Achieving such goals requires the inclusion of several categories [5]. For example, by analyzing patient data, hospital management can find deeper correlations and data patterns that can lead to improvements in medical procedures and practices [6]. With the pioneering work started in 1950s, patient satisfaction (and improving quality of patient care) is still an ongoing process, and comprise of a combination of technical, interpersonal and organizational aspects [7, 8]. The following six areas have been identified to cover the entire structure of the

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healthcare system: Healthcare and medical care should be knowledge-based, safe, patient-centered, effective, equitable and timely [9]. Moreover, many parameters have been related to patient satisfaction, including physician's knowledge, attitudes, and responsiveness, wait times, patient privacy, infrastructure, cleanliness, cost-effectiveness, length of visit, access to medication, counseling and clinical procedures [10]. Patients also differ in their satisfaction with various aspects of the healthcare system, depending on their personal quality of life is influenced by the environmental, social, and informational aspects that affect patient satisfaction with the services availed [11]. Recently, the focus of healthcare system has shifted to the quality of services. In this regard, a simple and direct approach is to ask patients themselves to rate the healthcare system [12]. As a result, the notion of patient satisfaction surveys with questionnaires on the quality of care was established [13]. Patient satisfaction being a key indicator for characterizing the healthcare system and the services it provides to the public, this cross-sectional study was designed to evaluate patient satisfaction and related factors at the Lady Reading Hospital (LRH) Peshawar, Pakistan [14].

It is hypothesized that this study will identify areas of improvement and provide suggestions to elevate the level of patient satisfaction.

METHODS

This study was designed as a cross-sectional, single hospital-based study for a duration of 6 months (Jan-June, 2024), was carried at the LRH Peshawar, Khyber Pakhtunkhwa. Patients admitted for indoor treatment at all departments of LRH, Peshawar for at least 2 days were eligible for enrollment in this study. The terms "ward admission" and "indoor treatment" were used interchangeably. All indoor patients were categorized based on their admission into either Surgical and Allied Wards or Medical and Allied Wards. Patients admitted for indoor treatment were included in the study; however, those with specific conditions were excluded to maintain the study's focus on general inpatient satisfaction. Exclusion criteria included patients admitted to the Intensive Care Unit (ICU) or Coronary Care Unit (CCU), as well as those in psychiatry and oncology wards. Additionally, patients who tested positive for COVID-19 or Congo virus were not enrolled. Pediatric and nursery ward patients were also excluded to ensure the study targeted adult inpatients capable of independently assessing their satisfaction with healthcare services. The OpenEpi Calculator- an open-source statistical tool- was used to estimate the sample size for this study. It was assumed that the data collected in this study will follow the Chi square statistics. Keeping a 50% patients proportion in MTI, statistical significance at 0.05 and a 95% confidence level, the required sample size was estimated, which came out to be 384. After ensuring the eligibility, patients were enrolled through multistage consecutive sampling technique. The Patient Satisfaction Questionnaire (PSQ)-18 was utilized to quantify the level of patient satisfaction [15]. The PSQ-18 consisted of 18 questions, pertaining to the following seven domains: general satisfaction (2 items), interpersonal manner (2 items), time spent with the doctor (2 items), technical excellence (4 items), economical aspects (2 items), accessibility and convenience (4 items). Many items of the PSQ-18 use the term health screening, which is indicative of the particular diagnostic and/or therapeutic services availed at the hospital. The patient response to each of these question was recorded on the Likert scale, ranging from 1 (completely unsatisfied) to 5 (completely satisfied). The Likert scale is a psychometric scale is widely involved in research that employs questionnaires [16]. Thus, the satisfaction level of each patient was reflected by a cumulative score of 18-90. The patient was regarded as dissatisfied if PSQ-18 cumulative score < 50 and satisfied if PSQ-18 cumulative score ≥ 50 [17]. The SPSS (version 21) was used for data storing, sorting, manipulation and analysis. Statistical significance was determined using chi-square test. The study was approved by the Ethical Board of Khyber Medical University, Peshawar (Reference No. KMU/IPHSS/Ethics/2023/PS/0171). Patients were enrolled up on agreement for participation, and signing a written consent.

RESULTS

The PSQ-18 consists of two major parts, including patient demographics and patient satisfaction regarding different domains of the healthcare system. Table 1 presented a summary of patient demographics. Of the total 384 patients enrolled, 214 (~ 55.7 %) were female patients. The majority of patients were of old age. Specifically, 199 (~ 51.82%) patients belonged to the age of more than 45 years. There were 58 (~ 15.1 %) patients younger than 25 years. The number of patients in 26-25 years and 36-45 years were 63 (16.41 %) and 64 (16.67%), respectively. Education level assessment of the patients revealed that maximum number of patients did not studied at all, followed by the school education (up to grade 10). The number of patients with intermediate, bachelor and graduate level education were 36 (9.4%), 16 (4.2%) and 02 (0.5%), respectively. The distribution of patients in the medical and allied and surgical and allied was 81.5 and 18.5%, respectively.

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Table 1: Demographics of Patients included in this Study

Variables	Category	Frequency (%)
Gender	Male	170 (44%)
	Female	214 (56%)
Age (Years)	< 25	58 (15%)
	26-35	63 (16%)
	36-45	64 (17%)
	>45	199 (52%)
Education	No Education	283 (74%)
	School	47 (12%)
	Intermediate	36 (9.5%)
	Bachelor	16 (04%)
	Master	02 (0.5%)
Ward of Admission	Medical and Allied	313 (81.5%)
	Surgical and Allied	71 (18.5%)

Overall, 82.81% (313/384) of the patients were satisfied with the services and facilities at the hospital, while a relatively small number of patients (71/384: 17.19%) were not satisfied. Table 2 showed stratified data on patient satisfaction in each of the seven domains of PSQ-18. The highest number of patients (277: 72%) were satisfied with domain D7 (Accessibility and Convenience), followed by 264 (69%) in the D6 (Time Spent with Doctors). Likewise, 257 (67%) and 248 (65%) patients were satisfied with D5 (Financial Aspects) and D3 (Interpersonal Manner), respectively. The lowest patient satisfaction was observed D2 (202: 53%).

Table 2: Satisfaction and Dissatisfaction Frequencies in Various Domains of PSQ-18

Domain of PSQ-18	Satisfaction Frequency (%)	Dissatisfaction Frequency (%)
D1: General Satisfaction	207 (54%)	177 (46%)
D2: Technical Quality	202 (53%)	182 (47%)
D3: Interpersonal Manner	248 (65%)	136 (35%)
D4: Communication	233 (61%)	151 (39%)
D5: Financial Aspects	257 (67%)	127 (33%)
D6: Time Spent with Doctors	264 (69%)	120 (31%)
D7: Accessibility and Convenience	277 (72%)	107 (28%)

Table 3 presented the minimum, maximum, median and mean Likert score for each of the 18 items of the PSQ-18. Majority of the median and mean scores are equal to or above 3, suggested that majority of the patients were satisfied.

Table 3: Satisfaction and Dissatisfaction Frequencies against Each Item of PSQ -18

Questions	Mini Score	Max Score	Median Score	Mean Score	Standard Deviation
Screening received was perfect	1.00	5.00	3	3.21	1.34
Dissatisfied with the screening received	1.00	5.00	3	2.71	1.14
Screening station provided appropriate medical care	1.00	5.00	4	3.77	1.03
I wonder about the correctness of diagnosis	1.00	5.00	3	3.03	1.37
During screening, the staff carefully examined everything	1.00	5.00	4	3.78	1.15
Doubts about the capability of my doctor	1.00	5.00	3	2.89	1.29
Staff acted busy and impersonal	1.00	5.00	3	2.66	0.98
Screening staff was very friendly and courteous	1.00	5.00	4	3.83	1.10
Staff explained the health screening	1.00	5.00	2	2.17	1.16
Doctor sometime ignored me	1.00	5.00	3	3.00	1.31
Screening availed without financial set back	1.00	5.00	3	3.25	1.05
Affordability of health screenings	1.00	5.00	3	2.74	1.13
The screening staff was in too much hurry	1.00	5.00	3	3.08	1.27
Time spent on screening was adequate	1.00	5.00	2	2.27	1.18
Ease in access to the health screenings	1.00	5.00	4	3.59	1.10
Waiting period for the health screening	1.00	5.00	3	2.79	1.14
Getting appointment for health screenings was hard	1.00	5.00	3	2.96	1.05
Health screenings is offered whenever needed	1.00	5.00	3	3.06	1.27

The gender-wise data stratification for patient satisfaction showed significantly higher satisfaction level for female patients compared to male patients (86.5% vs. 78.2%, $p < 0.05$: Figure 1a). Age stratification (Figure 1b) illustrated highest satisfaction rate of 86.4% for older patients of age > 45 years. Focusing on the younger patients, differences in satisfaction rate were seen (<25, 26-35, 36-45 years: 87.9%, 77.8%, 71.9%, $p > 0.05$). However, these differences were not statistically significant ($p > 0.05$). Moreover, it was found that the patients admitted to the medical and allied wards were more satisfied than those admitted to the surgical and allied wards (86.26% vs. 67.61%, $p < 0.01$: Figure 1c). Moreover, the impact of patients' education levels on satisfaction levels was also evaluated (Figures 1d and 2b). Educational attainment was categorized into five levels: No Education, School, Intermediate, Bachelor, and Master. The correlation between education level and satisfaction was analyzed, with results further stratified by gender to assess variations between male and female patients. Overall, satisfaction among patients with no, school, intermediate, bachelor and master education was 82.69% (234/283), 85.11% (40/47), 75% (27/36), 100% (16/16) and 50% (1/2), respectively (Figure 1d).

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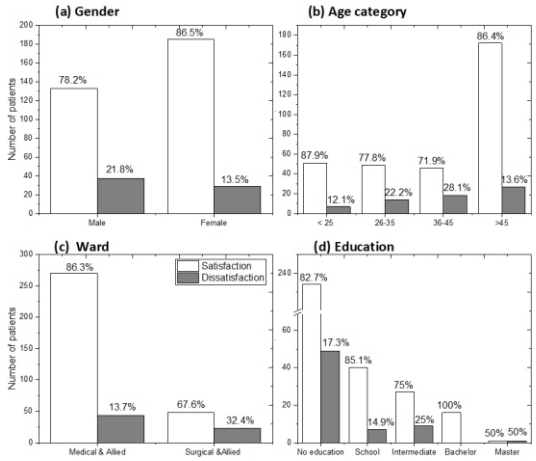

Figure 1: Patient satisfaction evaluated using PSQ-18. The number of satisfied patient (x-axis) were stratified on the basis of (a) gender, (b) age, (c) ward admission, and (d) education. White and gray bars represent satisfied and dissatisfied patients, respectively.

Patient satisfaction was further carried out in sub-groups. Results for satisfaction of male and female patients with respect to their age, level of education and ward admission are shown in Figure 2. For the male group, patients older than 45 years of age (87.37%) (Figure 2a), with no or school education (83.3% and 100%) (Figure 2b) and those admitted to medical and allied wards (90.21%) (Figure 2c) showed higher satisfaction. This trend was slightly different in the female patient group. Specifically, the satisfaction rate in female patients older than 45 years of age was 85.58% (Figure 2a), in patients with no or bachelor education was 100% and 82.29% (Figure 2b) while 82.94% in female patients admitted to medical and allied wards (Figure 2c).

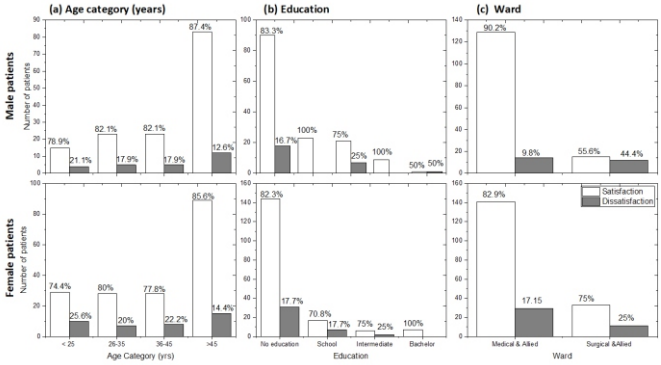

Figure 2: Patient satisfaction stratified for male (top row) and female (bottom row) patients. Sub-stratification of male and female patient groups was performed with respect to their age (a), education (b), and ward admission (c). White and gray bars represent satisfied and dissatisfied patients, respectively.

DISCUSSION

The PSQ-18 is a valuable tool that allows to measure patients' satisfaction in a variety of domains [15]. This analyses revealed that the number of satisfied patient was significantly higher than the number of dissatisfied patients (318 vs. 66: $p < 0.01$). Expanding the analysis to each question of PSQ-18 showed that mean satisfaction score in 16/18 question was 60% or above. Nonetheless, the results presented herein may be viewed in the light of their inherent shortcomings. First, a cross-sectional study only provides a snapshot of the prevailing situation. Due to the design of the PSQ-18, the responses may seem subjective. Moreover, although this study enrolled the required number of eligible participants, a multicenter study would provide better understanding of the factors related to patient satisfaction. Such analyses can potentially reveal more heterogeneity and other substructures in the patient experience, leading to a deeper understanding of patient satisfaction and related factors. The quality of care has been divided into the professional quality of the service providers and the functional quality perceived by the patients [18]. Professional quality refers to the level of competence in providing professional medical skills and making accurate diagnoses. On the other hand, patient-perceived quality means not only medical competence but also functional quality, which indicates how well the patient's needs (equipment, facilities, physical environment, communication, etc.) are met [19]. Based on this, it was found that patients with poor medical outcomes were satisfied. In addition, poor quality of care has been reported when patients feel they have not received an accurate diagnosis and treatment [20]. The quality of medical services depends heavily on the criteria that patients use to make their own assessments. As patient needs become more diverse and demanding, subjective assessment from the patient's perspective is considered more important for assessing the quality of medical care [21]. Previous studies investigating patient satisfaction have concluded that the attitude of the medical staff (i.e., doctors, nurses, paramedics) had the highest satisfaction value, while other studies emphasized the importance of trust in the competence and attention of doctors on the quality of care [22]. The existing literature also suggests that the interpersonal communication, soft skills and behaviors of the healthcare provider towards patients are directly related to patient satisfaction [23]. Meanwhile, hospital facilities seemed to be the area that should be given more attention to improve inpatient satisfaction, in line with other findings [24]. Moreover, longer waiting times are negatively correlated with patient satisfaction of the service provider. Studies have also shown that elderly patients, low-income patients, female patients, patients with only primary education and patients in rural areas have high levels of satisfaction [25]. Interestingly, the results of this study are consistent with previous studies on age and educational level in several developed countries. Beside international studies, several authors have investigated and evaluated patient satisfaction in Pakistan [26]. These studies have assessed patient satisfaction from various angles, such as the provision of free medicine in public hospitals, comparing satisfaction between public and

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private hospitals, patient satisfaction at the medical, surgical, outdoor, registration departments, etc. For example, Farid *et al.*, studied the correlation between provision of free medicines to the patients in public hospitals and patient satisfaction in a cohort of 384 patients.The results showed that 59.4% of the respondents agreed that prices of medicines in Pakistan are low, 49.7% denied the availability of free medicines, 58.3% responded lack of proper information about drug utilization, while 63.3% respondents agreed that non-registration of pharmacies leads to substandard medicines [27]. Farooq *et al.*, compared patient satisfaction attending the Combined Military Hospital (CMH), Lahore and Jinnah Hospital, Lahore.The results revealed that patient satisfaction was significantly better ($p = 0.03$) at CMH in six (out of seven) domains studied [28]. Likewise, the patient satisfaction among private and public hospitals of Islamabad have also been compared in a multi-center cross-sectional study. The score of time spent by the doctor with the patient, communication, and convenience was significantly higher ($p < 0.05$) in private hospitals [29]. A recent study assessed patient satisfaction in tertiary care hospitals of Peshawar, with the use of PSQ-18. The results showed a higher patients satisfaction level for private hospitals compared to public hospitals (i.e., 96% vs. 86%) [30]. Similar comparison of patient satisfaction for public and private hospitals of Lahore has also been reported [31]. Moreover, patients' satisfaction with the utilization of different ambulance services at LRH Peshawar has been evaluated.

CONCLUSIONS

This study assessed the satisfaction of admitted patients and associated factors using PSQ-18 at the LRH, Peshawar, Pakistan. Overall, majority of the patients expressed satisfaction. Data stratification demonstrated that the highest number of patients were satisfied with the domain D7, followed by domain D6, while minimum number of patients were satisfied with the domain D2. Moreover, higher number of patients older than 45 years, patients of female gender, patients with bachelor education and patient admitted to medical and allied ward expressed satisfaction. The same trend of patient satisfaction was found among male patients and female patients separately.

Authors Contribution

Conceptualization: MW, KR, MP
Methodology: MP, JS, SMN
Formal analysis: MP, JS
Writing, review and editing: MW, KR, MP, JS, SMN

All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

All the authors declare no conflict of interest.

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