

DETERMINANTS OF PATIENT SATISFACTION IN TERTIARY HEALTHCARE: THE MEDIATING ROLE OF PATIENT - PERCEIVED EMPOWERMENT

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ABSTRACT

The purpose of this research is to investigate the impact of technical quality, service quality, doctor-patient communication, and patient-perceived empowerment on patient satisfaction. Moreover, the mediating effect of patient-perceived empowerment between technical quality, service quality, doctor-patient communication, and patient satisfaction is also explored.

Methodology

The research was conducted using a quantitative approach and a structured questionnaire was designed to collect data from inpatients and outpatients of tertiary care hospitals in Karachi, Pakistan. The data was collected using a five-point Likert scale. A total of 380 valid responses were collected, which were then analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4 software.

Findings

The findings of the study indicate that service quality, communication, and patient-perceived empowerment have a significant positive impact on patient satisfaction, while technical quality does not have a significant positive impact on patient satisfaction. Moreover, the findings also indicate that patient-perceived empowerment has a significant positive mediating effect on the relationship between communication and patient satisfaction. However, the mediating effect of patient-perceived empowerment on the relationship between technical quality and patient satisfaction, and service quality and patient satisfaction is not supported.

Research Limitations

The study is confined to the tertiary care hospitals of Karachi. This might affect the generalizability of the results to other areas or settings. The study is based on data collected from patients only, and the cross-sectional nature of the study restricts the establishment of causality.

Practical Implications

The results of the study emphasize the need to improve doctor-patient interactions, healthcare service accessibility, and patient empowerment to improve patient satisfaction. Healthcare professionals and policymakers should focus on patient satisfaction-oriented healthcare practices, patient

empowerment in decision-making, and remove the hurdles to healthcare accessibility, especially in developing countries.

Originality / Value Added

The study makes an original contribution to the healthcare literature by incorporating technical quality, service quality, doctor-patient communication, and patient-perceived empowerment into a unified framework. The study provides new empirical insights into the mediating effect of patient-perceived empowerment, especially in the context of a developing country, and hence provides valuable theoretical and practical contributions.

Keywords: Technical service, quality service, communication, patient-perceived empowerment, and patient satisfaction.

INTRODUCTION

Healthcare beyond medical treatment depends on patient satisfaction (Miolda et al., 2023). It involves establishing a kind and encouraging atmosphere where patients are respected, listened, and understood. Building trust and fostering loyalty occurs when healthcare providers take the time to listen, explain, and include patients in their care (Kim et al., 2024). Little factors like simple scheduling, short wait times, and a pleasant waiting space are highly valued by patients (Rowe & Knox, 2023). Healthcare professionals can enhance health outcomes and foster a positive experience outside of the clinic or hospital by putting patient satisfaction first (Awwad et al., 2025). Additionally, by placing patients at the centre of care, medical professionals may attend to their specific requirements, which improves outcomes and patient satisfaction (Omaghomi et al., 2024).

According to Wang et al. (2023), a number of factors influence patient satisfaction from a social standpoint, such as socioeconomic status (Alwedyan et al., 2024), cultural background (Akthar and al., 2023), and social support (Liu et al., 2023). Additionally, scientists think patients are happier with their care when they have robust social networks and support systems (Akthar et al., 2023). According to Ye et al. (2024), patients from lower socioeconomic backgrounds are frequently less satisfied. Additionally, patients who have low health literacy can require assistance in comprehending the advice given by their physicians (Hernandez et al., 2024).

There are numerous researches on patient satisfaction that use various antecedents in various nations. For instance, using information gathered from the University Polyclinic in Messina, Italy, a study looked at

the factors that influence customer satisfaction. Patient satisfaction is positively impacted by nurses' judgment, doctors' professionalism and competency, and the simplicity of report collection, according to the study (Alibrandi et al., 2023). A different study looked at patient satisfaction from a psychological angle. According to the study, patient satisfaction is impacted indirectly (via communication) by stereotypes, trust, and humanized perception. Accordingly, the study found that the aforementioned factors would not have a good impact on patient satisfaction if a hospital's communication was unclear (Wang et al., 2023). Customers greatly value online consultation, according to Dhakate and Joshi's (2023) analysis of client satisfaction with online consultation during the COVID era. Additionally, the study found that physician's knowledge and behavior are significant predictors of patient satisfaction. Additionally, the study discovered that happy customers who leave favorable evaluations are significant. Informational assistance is more crucial for patient satisfaction than emotional support, according to a health care study by Liu et al. (2023). Conversely, information assistance has less of an impact on patient attitude than emotional support.

Likewise, a variety of moderators have been employed in numerous researches on patient satisfaction. Age was a moderator in one research. According to the study, trust in hospital admittance and trust in doctors are positively moderated by age. Likewise, a research conducted in Nigeria looked into the moderating influence of patient satisfaction and came to the conclusion that the association between electronic health records and operational efficiency is moderated by patient

satisfaction (Gumu, 2023). The association between empathy and satisfaction is moderated by trust, according to another Malaysian study that employed trust as a moderating variable (Abdullah et al., 2023). To address the above gaps, we have formulated the following research objectives.

1. To examine the effect of Technical Quality, Service Quality, Doctor-Patient Communication, and Patient Perceived Empowerment on Patient Satisfaction.
2. To examine the mediating effect of Patient-Perceived Empowerment on (i) Technical Quality and Patient Satisfaction, (ii) Service Quality and Patient Satisfaction, and (iii) Doctor-Patient Communication and Patient Satisfaction.

LITERATURE REVIEW

PATIENT SATISFACTION

Numerous factors influence patient satisfaction. It encompasses physical and emotional comfort (Young et al., 2024), quality of treatment (Febres-Ramos & Mercado-Rey, 2020), and transparent and compassionate communication (Siebinga et al., 2022). Patients are happy and more likely to follow treatment plans and have better health outcomes (Febres-Ramos & Mercado-Rey, 2020). Additionally, according to Keshtkar et al. (2024), patient satisfaction improves the standing of healthcare providers. On the other hand, low patient satisfaction may lead to unfavourable health outcomes, a decline in adherence, unfavourable evaluations, and higher medical expenses (Akthar et al., 2023). Healthcare providers can enhance the overall quality of service, patient experience, and results by putting patient satisfaction first (Mandagi et al., 2024).

TECHNICAL QUALITY

Technical quality of care is the patients' perception of the competence, accuracy, and professionalism displayed by healthcare professionals in the diagnosis and treatment of patients. Unlike interpersonal quality of care, technical quality is the patients' assessment of the clinical competence, accuracy, and professionalism of healthcare professionals. Even though patients cannot objectively measure the accuracy of care, their perceptions

of healthcare professionals' competence have a significant impact on their overall satisfaction with healthcare services. Empirical research has shown that perceived technical competence is a strong predictor of patient satisfaction because patients who feel that their healthcare provider is competent and knowledgeable are more likely to be satisfied with their healthcare experiences (Bleich, Özaltın, & Murray, 2009; Batbaatar et al., 2017).

SERVICE QUALITY

Service quality has been recognized as a critical predictor of patient satisfaction in the modern literature on healthcare. In the hospital and primary care context, service quality can be defined as the patients' perceptions of responsiveness, reliability, empathy, assurance, and tangibility of healthcare services, which influence the overall experience of healthcare delivery. Empirical research has suggested that a greater perception of service quality is a critical predictor of greater patient satisfaction, as patients perceive efficient processes, courteous staff behavior, and well-maintained facilities as indicators of competent and patient-centered healthcare. For instance, a study published in BMC Health Services Research suggested that interpersonal care, timeliness, and provider attentiveness are critical predictors of satisfaction outcomes in the hospital and primary care context (Batbaatar et al., 2017). Similarly, a systematic review published in Healthcare suggested that responsiveness and communication as service quality dimensions are the most critical determinants of patient satisfaction in the healthcare context (Manzoor et al., 2019). In addition, evidence from PLoS One suggests that structural and process-related quality indicators such as facility cleanliness, waiting time management, and staff courtesy are significantly related to greater levels of patient satisfaction (Tessema et al., 2021).

COMMUNICATION

Optimal communication between doctors and patients has been identified as a key determinant of patient satisfaction in healthcare facilities. Communication includes the use of clear explanations, active listening, empathy, respect, and the provision of clear

health information. Recent studies indicate that when healthcare professionals communicate effectively with patients, there is an increased understanding of their health conditions, increased trust, and increased feelings of participation in decision-making, which are all key factors that have a positive impact on patient satisfaction outcomes. For example, BMC Health Services Research presented evidence that showed effective communication by healthcare providers was a strong predictor of patient satisfaction in various primary healthcare facilities (BMC Health Services Research, 2022). In addition, a study in PLOS ONE indicated that interpersonal communication and respect demonstrated by healthcare providers were the most powerful predictors of satisfaction outcomes in hospital settings (PLOS ONE, 2018). Moreover, a systematic review in BMJ Open indicated that patient-centered communication increases patient satisfaction by improving perceptions of care quality and increasing patient engagement (BMJ Open, 2014).

PATIENT PERCEIVED EMPOWERMENT

According to Lampus and Wuisan (2024), patient empowerment is the process that gives patients the ability to make decisions about their health. According to several experts, it is both a process and a result (Keshtkar et al., 2024). Because they have access to the internet, patients collect enough information prior to seeing a physician. As a result, they anticipate that physicians will hear their viewpoints on the condition (Ali et al., 2024). Patient empowerment has become widespread in wealthy nations. Conversely, traditional physicians in developing nations think that patient empowerment could make it more difficult for patients to receive medical care (Dawood-Khan et al., 2024). But now, things are starting to change. Nowadays, a lot of medical professionals in developing nations pay attention to what patients have to say regarding their conditions and viewpoints (Keshtkar et al., 2024).

HYPOTHESIS DEVELOPMENT TECHNICAL QUALITY AND PATIENT SATISFACTION

Technical quality of care is generally acknowledged as a key antecedent of patient satisfaction, especially in the context of hospitals and specialized healthcare facilities. Technical quality can be defined as patients' perceptions of the technical competence, accuracy of diagnosis, appropriateness of treatment, and overall professional competence of healthcare providers. Although patients cannot objectively assess clinical procedures, they tend to develop their own perceptions of technical competence based on treatment outcomes, confidence in physicians, medical explanations, and the effectiveness of interventions. There is empirical evidence to suggest that patients who perceive healthcare providers as technically competent and skilled experience an increase in their trust levels in the healthcare system, ultimately resulting in greater levels of satisfaction. For example, studies have shown that perceived technical quality is a significant predictor of patient satisfaction in both outpatient and inpatient settings (Choi et al., 2004; Wu et al., 2016). In addition, studies conducted in hospital settings have found that perceived clinical effectiveness and professional competence are the most influential determinants of overall satisfaction, even after accounting for interpersonal and environmental aspects (Batbaatar et al., 2017). More contemporary evidence also supports that patients' perceptions of medical competence and treatment effectiveness have a positive association with satisfaction, especially when outcomes meet expectations (Manzoor et al., 2019). Thus, technical quality serves as a fundamental cognitive evaluation process whereby patients judge the value and validity of healthcare, which ultimately influences satisfaction.

H1: Technical Quality positively affects Patient Satisfaction.

SERVICE QUALITY AND PATIENT SATISFACTION

Service quality has emerged as a prominent antecedent of patient satisfaction in recent healthcare studies. In patient-centered care environments, service quality is generally

measured using factors such as responsiveness, reliability, empathy, assurance, and tangibility, which represent both the technical and functional service quality dimensions. There is considerable empirical support for the fact that patients rate their healthcare experiences not only in terms of their clinical outcomes but also in terms of the services provided, including the behavior of healthcare staff, communication, waiting times, and facility environment. Several studies have confirmed that patients rate their healthcare experiences higher when they perceive higher service quality, which in turn has a significant positive effect on patient satisfaction by improving patients' overall perception of their healthcare experiences and boosting their confidence in healthcare providers. For instance, a study published in BMC Health Services Research concluded that responsiveness and empathy were key predictors of patient satisfaction in primary healthcare settings (Ahmed et al., 2022). In a similar study published in PLoS ONE, it was found that service quality factors, including cleanliness and provider interaction, had a significant impact on patient satisfaction levels in a hospital setting (Hossain et al., 2019).

H2: Service Quality positively affects Patient Satisfaction.

COMMUNICATION AND PATIENT SATISFACTION

Communication between healthcare professionals and patients has been repeatedly recognized as an important precursor of patient satisfaction in the literature on contemporary healthcare. Communication involves the use of explanations, listening, empathy, responsiveness to patient concerns, and the provision of information that is easily understood by patients. Research studies have shown that when physicians use clear and respectful communication, patients tend to report higher levels of satisfaction because they feel understood, informed, and valued. For instance, a cross-sectional study conducted by K. A. Ong et al. in 2002 demonstrated that patient-centered communication behaviors, such as information giving and support, were significantly related to better patient satisfaction outcomes. In a similar study, R. L. Street Jr. et al. in 2009 emphasized that good

physician-patient communication improves patients' understanding and participation in their care, which is positively related to patient satisfaction. More recently, studies published in BMC Health Services Research have confirmed that the quality of interpersonal communication, especially respect, empathy, and clarity, continues to be an important predictor of patient satisfaction in primary healthcare (for example, studies in 2022 in rural healthcare settings).

H3: Communication positively affects Patient Satisfaction.

PATIENT-PERCEIVED EMPOWERMENT AND PATIENT SATISFACTION

By communicating their symptoms to the clinicians, patients who are empowered can take the initiative (Lampus & Wuisan, 2024). Additionally, when doctors let patients ask questions about their therapies, they are happier. prescriptions for medications (Keshtkar et al., 2024). Additionally, researchers think that when physicians inform patients about their diseases and available treatments, patient satisfaction rises (Campos et al., 2024). According to Ali et al. (2024), clinicians that let patients access to test findings and medical information also see an improvement in patient satisfaction. Numerous researches have found a correlation between better and favorable health outcomes, including cost-effectiveness and quality of life, and patient-perceived empowerment (Dawood Khan et al., 2024).

H4: Patient-Perceived Empowerment positively affects Patient Satisfaction

TECHNICAL QUALITY AND PATIENT EMPOWERMENT AND PATIENT SATISFACTION

Perceived technical quality of care is the patients' assessment of the competence, accuracy, and professionalism shown by healthcare providers in the process of diagnosis and treatment. In modern healthcare studies, technical quality has been found to be a very important antecedent of patient satisfaction, as patients make use of observable cues such as comprehensive testing, confident decision-making, and evidence-based treatment

recommendations to assess the overall quality of care (Bleich, Özaltın, & Murray, 2009; Doyle, Lennox, & Bell, 2013). Apart from the direct relationship between technical quality and patient satisfaction, recent studies on patient-centered care literature have shown that perceived technical quality also has a positive impact on patient perceived empowerment. If patients perceive that their healthcare providers possess technical competence, they are more likely to be confident in medical recommendations, to feel comfortable participating in discussions, and to have a greater sense of control over healthcare decisions (Toccafondi et al., 2015; WHO, 2016).

H5: Patient-Perceived Empowerment mediates Technical Quality and Patient Satisfaction.

SERVICE QUALITY AND PATIENT EMPOWERMENT AND PATIENT SATISFACTION

Service quality has been found to be a major antecedent of patient satisfaction in healthcare organizations. Modern theories view service quality as a complex construct that includes various dimensions such as reliability, responsiveness, assurance, empathy, and tangibility, which in turn influence patients' overall perceptions of their care experiences. Empirical research suggests that patients who experience high levels of service quality, including effective communication, promptness, courtesy, and clean facilities, are more likely to experience increased feelings of confidence, control, and involvement in their care experiences. These factors increase patient perceptions of empowerment, which is defined as patients' feelings of autonomy, competence, and control over healthcare decisions. Research has shown that empowered patients tend to rate their satisfaction levels higher because empowerment leads to reduced uncertainty, increased trust, and collaborative decision-making. Recent studies have shown that service quality not only has a direct effect on patient satisfaction but also indirectly affects patient satisfaction through psychological processes such as empowerment and perceived control (Andaleeb, 2001; Aliman & Mohamad, 2016; Ng & Luk, 2019).

H6: Patient-Perceived Empowerment mediates Service Quality and Patient Satisfaction.

COMMUNICATION AND PATIENT EMPOWERMENT AND PATIENT SATISFACTION

Doctor-patient communication has been found to be a vital determinant of both patient perceived empowerment and patient satisfaction in the current literature on healthcare. Communication practices such as information sharing, listening, empathy, and joint talk improve patients' understanding of their disease and treatment choices, thus increasing their feelings of control and self-efficacy in managing their health. This perceived empowerment, in turn, positively influences patients' evaluative appraisals of care experiences, leading to higher levels of satisfaction. The empirical literature clearly shows that patient-centered communication promotes increased involvement in decision-making, improves trust, and improves perceived autonomy, which are key antecedents of empowerment and drivers of satisfaction outcomes (Street et al., 2009; Greene & Hibbard, 2012; Doyle, Lennox, & Bell, 2013; Birkhäuser et al., 2017). Moreover, research has also found that patients who view communication as respectful and participatory report higher levels of empowerment, which mediates the relationship between communication quality and satisfaction (Hibbard & Greene, 2013; Santana et al., 2018). Therefore, communication not only serves as a direct determinant of patient satisfaction but also indirectly improves satisfaction outcomes through the psychological process of patient perceived empowerment, thus validating its role as a core antecedent in patient-centered care models.

H7: Patient-Perceived Empowerment mediates Communication and Patient Satisfaction.

CONCEPTUAL FRAMEWORK

Figure 1 shows the conceptual framework. It has four direct and three mediating relationships.

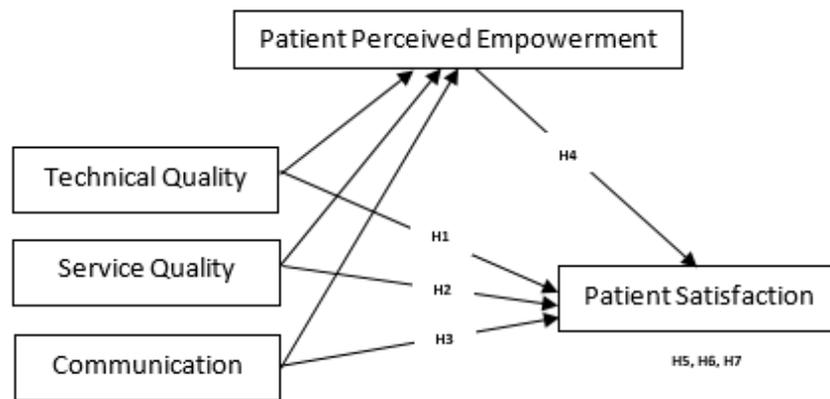


Figure 01: Conceptual Framework

POPULATION AND SAMPLE

The study's population consists of respondents from all socioeconomic classes who can read and interpret English. The study population was made up of both inpatients and outpatients from Karachi's tertiary care facilities. The requirements for including respondents are (i) their willingness to take part in the survey, (ii) being adults who saw a doctor during the previous three months. The respondents are excluded if they are (i) underage, (ii) have not seen a doctor in the last three months, or (iii) are illiterate in English.

The study used the recommendations of Hair Jr. et al. (2017) to determine the sample size. For every indicator, these researchers recommend choosing five observations. There are 21 indicator variables in all in this study.

Our calculated sample size was 250 (21 indicators X ten observations). We received 380 surveys out of 400 that we circulated.

SCALES AND MEASURES

The study employed a two-section, closed-ended, five-point Likert scale. The demographic profile of the respondents is measured in Section 1, and all five factors are measured in Section 2. Using data from other studies, we created a variety of questionnaire items and presented them to patients, management consultants, and medical professionals. We changed the questionnaire in response to their discussion and comments. Table 1 shows constructs and sources.

Table 1 Scale and Measures

Constructs	References
Technical Quality	Bleich, Özaltın, & Murray (2009); Batbaatar et al. (2017); Wu, Cheng, & Yen (2016)
Service Quality	Andaleeb (2001); Manzoor et al. (2019); Ahmed, Tarique, & Arif (2022); Hossain et al. (2019)
Communication	Ong et al. (2002); Street et al. (2009); Siebinga et al. (2022)
Patient Perceived Empowerment	Hoseini-Esfidarjani et al. (2021)
Patient Satisfaction	Möller-Leimkühler et al. (2002)

STATISTICAL ANALYSIS:

For statistical analysis, Smart PLS version 4 was employed. A measuring model was used in the

first step to evaluate the quality criteria. To evaluate the proposed connections between

latent variables, we created a structural model in step two.

DEMOGRAPHIC PROFILE:

Table 2 depicts the demographic profile: Gender, age, education, employment status, family income and frequency of doctor visits.

Table 2: Demographic Profile

Category	Sub Category	Percentage (%)
Gender	Male	35.36%
	Female	64.26%
	Others	0.38%
Age	18-25 years	12.92%
	26-30 years	28.14%
	31-40 years	42.59%
	41-55 years	11.03%
	55 + years	5.32%
Education	No Education	1.52%
	Primary Middle Level	0.76%
	Matriculation	2.66%
	Intermediate	7.60%
	Graduation	49.05%
	Post-Graduation	38.41%
Employment Status	Salaried	52.85%
	Self Employed	15.59%
	Part Time Job	8.74%
	Home wife/Homemaker	21.29%
	Retired	1.53%
Monthly Family Income	Less than 25,000 PKR	4.18%
	25,000 - 50,000 PKR	12.93%
	51,000 - 100,000 PKR	26.99%
	101,000 - 250,000 PKR	27.76%
	251,000 - 500,000 PKR	15.21%
	501,000 + PKR	12.93%
Doctor's Visits	Every Week	1.52%
	Every Month	0.76%
	Every 6 Months	2.66%
	Once a Year	7.60%
	Only when Sick	49.05%
	Never	38.41%

RESULTS:

MEASUREMENT MODEL

Figure 2 shows the “articulated relationships and β values.”

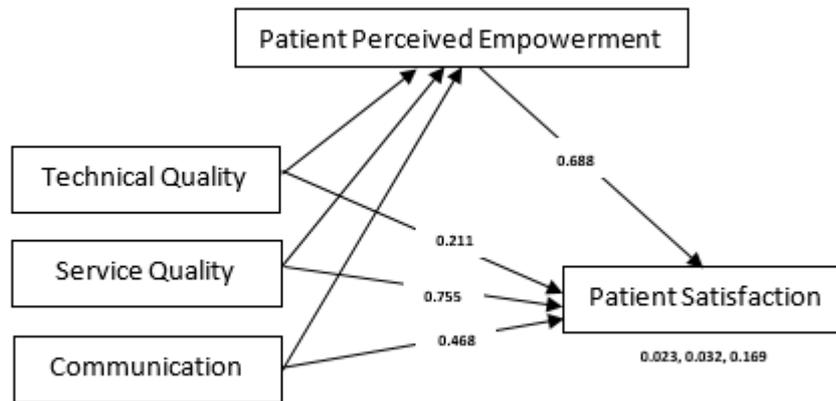


Figure 02: Measurement Model

CONVERGENT VALIDITY

Table 3 depicts Cronbach’s Alpha, composite reliability and AVE values.

Table 3: Convergent Validity

Constructs	Cronbach's Alpha	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Technical Quality	0.531	0.804	0.674
Service Quality	0.893	0.922	0.702
Communication	0.823	0.876	0.639
Patient Perceived Empowerment	0.820	0.875	0.588
Patient Satisfaction	0.938	0.952	0.801

According to researches, AVE values must be at least 0.500 and Cronbach's Alpha and composite reliability values must be at least 0.700 for internal consistency. These requirements are met by our findings, indicating that the constructs "fulfill the condition of internal convergent validity and consistency.

DISCRIMINANT VALIDITY

Based on the Heterotrait-Monotrait (HTMT) approach and the Fornell and Larcker (1981) Criterion, respectively, Tables 4 and 5 present the findings pertaining to discriminant validity. According to the information in Table 4, "the square root of AVE values is bigger than Pearson values of correlation. Likewise, "HTMT values are greater than 0.85," as seen in Table 5. The findings from both approaches indicate

that "the constructs employed in the study are unique and distinct."

Table 4: Discriminant Validity (Fornell & Larcker1981)

Construct	TQ	SQ	COMM	PPE	PS
Technical Quality	0.800				
Service Quality	0.406	0.838			
Communication	0.249	0.272	0.821		
Patient Perceived Empowerment	0.354	0.659	0.283	0.767	
Patient Satisfaction	0.468	0.755	0.211	0.668	0.895

Table 5: Discriminant Validity (Heterotrait-Monotrait (HTMT))

Construct	TQ	SQ	COMM	PPE	PS
Technical Quality	-				
Service Quality	0.426				
Communication	0.388	0.391			
Patient Perceived Empowerment	0.392	0.758	0.414		
Patient Satisfaction	0.478	0.820	0.207	0.756	-

STRUCTURAL MODEL

Figure 3 of structural model illustrates the relationship "between latent variables in terms

of t values." The outcomes of the hypotheses are presented in the following section.

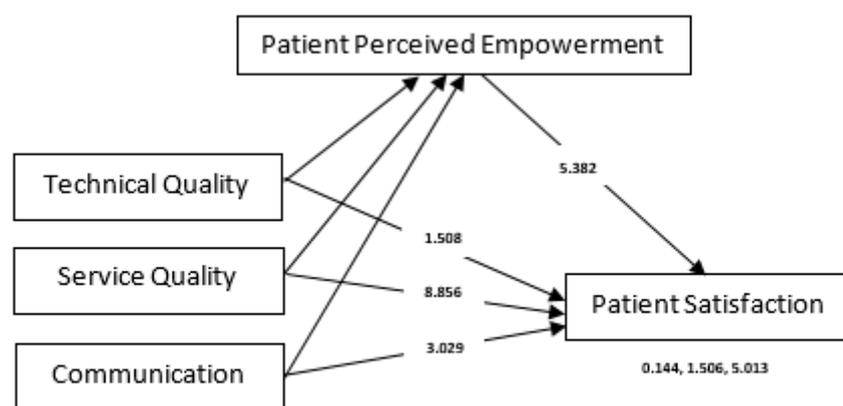


Figure 03: Structural Model

HYPOTHESIS RESULTS

Table 6 shows the results of four direct and three mediating hypotheses.

Direct Hypothesis	β	T. Stat	P. Value	Results
TQ \rightarrow PS (H1)	0.211	1.508	0.290	Rejected
SQ \rightarrow PS (H2)	0.755	8.856	0.000	Accepted
COMM \rightarrow PS (H3)	0.468	3.029	0.002	Accepted
PPE \rightarrow PS (H4)	0.688	5.382	0.001	Accepted
Indirect Hypothesis				
TQ \rightarrow PPE \rightarrow PS (H5)	0.023	0.144	0.000	Rejected
SQ \rightarrow PPE \rightarrow PS (H6)	0.032	1.506	0.101	Rejected
COMM \rightarrow PPE \rightarrow PS (H7)	0.169	5.013	0.001	Accepted

The results support three direct hypotheses (i.e., Hypothesis 2, Hypothesis 3, and Hypothesis 4) but do not support Hypothesis 1. Similarly, our results support one mediating hypothesis (i.e., Hypothesis 7), but they do not support two mediating hypotheses (i.e., Hypotheses 5 and 6).

DISCUSSION

The current study investigated the direct and mediating effects of Technical Quality, Service Quality, Communication, Patient-Perceived Empowerment (PPE), and Patient Satisfaction in the tertiary healthcare sector of Karachi. The results of the study have significant theoretical and contextual implications for patient-centered healthcare models.

First, the results show that Technical Quality has no significant effect on Patient Satisfaction (H1 was rejected). Although previous research has shown that perceived technical quality is a powerful predictor of patient satisfaction (Bleich et al., 2009; Batbaatar et al., 2017), the current results indicate that in the Pakistani healthcare context, patients may not be able to form an objective assessment of technical accuracy and competence. Rather, patients may place greater emphasis on what they can see and experience, such as service processes and communication styles. This is supported by a study in *BMJ Open* (Doyle et al., 2013), which proposed that patient experience factors tend to have a greater impact than technical assessments on satisfaction judgments.

Second, Service Quality had a strong positive impact on Patient Satisfaction (H2 was accepted). The high beta value ($\beta = 0.755$) shows that responsiveness, reliability, empathy, and tangibility play an important role in forming evaluative judgments. This result is consistent with BMC Health Services Research (Ahmed et al., 2022; Batbaatar et al., 2017) and PLOS ONE (Hossain et al., 2019), which emphasize that service delivery processes and staff behavior play a crucial role in satisfaction outcomes. In the context of developing healthcare systems, factors such as waiting time, staff courtesy, and facility cleanliness may be more important than technical factors.

Third, Communication had a significant and positive impact on Patient Satisfaction (H3 was accepted). This result supports previous evidence that effective physician-patient communication improves trust, clarity, and emotional reassurance (Street et al., 2009; Siebinga et al., 2022). The results are consistent with Patient Education and Counseling, which emphasizes communication as a healing pathway that connects interpersonal processes with satisfaction and health outcomes (Street et al., 2009). Communication improves patients' perceived involvement, understanding, and confidence, thereby improving overall care evaluations.

Fourth, Patient-Perceived Empowerment was a significant predictor of Patient Satisfaction (H4 was accepted). This result is consistent with empowerment theory and the views of Greene

and Hibbard (2012) and Ng and Luk (2019), who suggest that empowered patients are more engaged and have more positive views of care. This result is also consistent with the increasing international trend towards patient-centered care models endorsed by the World Health Organization (2016), which emphasizes autonomy, shared decision-making, and participatory care.

Turning to the mediation hypotheses, the results show that Patient-Perceived Empowerment mediated the relationship between Communication and Patient Satisfaction (H7 was accepted), but did not mediate the relationships between Technical Quality and Patient Satisfaction or Service Quality and Patient Satisfaction (H5 and H6 were rejected). This suggests that communication supports empowerment by increasing patient autonomy, clarity, and involvement, which in turn improves satisfaction. This result is supported by the views of Santana et al. (2018), who suggest that patient-centered communication is a key mechanism underlying empowerment.

Notably, service quality and technical quality failed to improve satisfaction via empowerment. This finding indicates that structural or process improvements can directly affect satisfaction without necessarily affecting perceived autonomy or control. Communication, on the other hand, uses psychological and relational processes that amplify empowerment before affecting satisfaction.

The study contributes to the patient satisfaction literature by explaining the psychological process through which communication affects satisfaction while pointing out the differences in the role of technical quality in different contexts.

CONCLUSION

This research makes a contribution to the literature on healthcare management and patient care by empirically validating a structural model that combines Technical Quality, Service Quality, Communication, Patient-Perceived Empowerment, and Patient Satisfaction.

The results of the study lead to the following conclusions:

- Service Quality is the most important predictor of Patient Satisfaction.
- Communication has a significant positive impact on satisfaction both directly and indirectly via empowerment.
- Patient-Perceived Empowerment has a central psychological role in influencing satisfaction.
- Technical Quality has no significant impact on satisfaction in this scenario.

The results suggest that in the context of Karachi's tertiary care facilities, patient satisfaction is more a function of experiential and psychological aspects than technical expertise.

MANAGERIAL IMPLICATION

The results have several key implications for managers in the healthcare sector.

1. Enhance Service Quality

Hospital managers should emphasize the need to minimize waiting times, increase staff responsiveness, maintain cleanliness of facilities, and improve courtesy training programs. Since service quality had the strongest impact on satisfaction, improving efficiency and staff training will result in immediate patient ratings (Ahmed et al., 2022).

2. Design Communication Skills Training Programs

Healthcare organizations should design communication skills training programs for doctors and nurses. Training programs emphasizing empathy, active listening, explanation, and decision-making will help improve patient satisfaction. Research from Patient Education and Counseling indicates that communication skills training programs result in improved satisfaction and adherence outcomes (Street et al., 2009).

3. Encourage Patient Empowerment Strategies

Hospitals need to develop policies that promote the following:

- Shared decision-making
- Access to medical information
- Explanation of treatment options
- Encouraging patients to ask questions

Integration of hospital strategies with the World Health Organization's (2016) people-centered care approach can greatly help in

enhancing the levels of empowerment and patient satisfaction.

4. Reevaluate the Overemphasis on Technical Quality Alone

Although technical quality is a crucial factor in patient safety and outcomes, healthcare administrators need to understand that patients do not necessarily link technical quality with satisfaction.

5. Integrate Empowerment Metrics in Performance Evaluation

Patient empowerment metrics can be integrated into the performance evaluation system of the hospital to measure psychological engagement, in addition to the traditional satisfaction survey.

FUTURE RESEARCH DIRECTION

Although it has made significant contributions, this study raises a number of avenues for future research.

1. Cross-Cultural Comparisons

Future studies should compare the relationships between the variables in different cultural settings to explore the extent to which the value of technical quality increases in highly developed healthcare systems.

2. Inclusion of Moderating Variables

Future research studies may include the following moderating variables:

- Health literacy
- Age
- Status of chronic illness
- Socioeconomic status

Previous studies (Alwedyan et al., 2024; Ye et al., 2024) have shown that socioeconomic and demographic factors play a significant role in determining satisfaction trends.

3. Longitudinal Research Design

The current study used a cross-sectional design. Longitudinal designs would have been more suitable to investigate causal associations and dynamic processes of empowerment and satisfaction.

4. Multi-Source Data Collection

Future studies can use patient surveys and objective clinical performance data to investigate the relationship between perceived and actual technical quality.

5. Expanding Psychological Mediators

Future studies can investigate other mediators, for example:

- Trust (Birkhäuser et al., 2017)
- Perceived empathy (Keshtkar et al., 2024)
- Patient activation (Greene & Hibbard, 2012)

6. Structural Model Refinement

Because of the low Cronbach's Alpha value for Technical Quality (0.531), future studies should aim to improve the internal consistency of the measurement items.

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