

Functional Quality and Patient Satisfaction: The Role of Trust and Communication

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Abstract

Purpose: This research investigates the effect of functional quality on patient satisfaction, mediated by trust in doctor and moderated by effective communication. By combining service quality, trust, and communication theories, this study offers a complete picture of the determinants of patient experiences in healthcare environments. **Method:** A quantitative research design was utilized, gathering information from 214 patients who had recently engaged with healthcare services. A standardized questionnaire was applied, using scales drawn from existing research to assess functional quality, trust in doctor, effective communication, and patient satisfaction. Smart-PLS, a variance-based structural equation modeling (SEM) software, was used for data analysis, examining the direct, mediating, and moderating effects in the suggested model. **Findings:** The findings validate that functional quality have positive effects on patient satisfaction. Doctor trust mediates this effect, highlighting the need to establish good patient-provider trust. Effective communication also moderates the effect of functional quality on satisfaction, proving that empathetic and clear communication improves patient experiences. **Originality/Implications:** This research adds to the current service quality literature by incorporating trust and communication as primary mechanisms of healthcare satisfaction. The results offer practical implications for healthcare providers and policymakers, highlighting the importance of quality service, trust-building practices, and better communication practices in improving patient satisfaction.

Keywords: Functional Quality, Patient Satisfaction, Trust in Doctor, Effective Communication, Healthcare Services.

INTRODUCTION

Patient satisfaction has emerged as a key measure of healthcare quality, influencing patient outcomes and organizational success. In recent years, healthcare organizations have increasingly focused on enhancing service quality to meet patients' expectations and improve overall experiences.^[1] Of the many aspects of service quality, functional quality plays the most critical role in shaping patients' perceptions as it includes factors such as tangibility, reliability, empathy, assurance, and responsiveness.^[2] These factors shape patients' evaluation of healthcare interaction and therefore render functional quality a critical factor in determining patient satisfaction.^[3] Since healthcare services are competitive, hospitals and clinics have to provide high functional quality in order to retain patients and build confidence in medical services.^[4] In addition to functional quality, trust in physicians is a critical factor in patient satisfaction because it affects patients' compliance with medical advice and their ability

to keep healthcare providers over the long term.^[5] Trust is a psychological process that lessens patient worry and promotes compliance with treatment schedules, thus increasing overall healthcare experience.^[6] Effective communication is also a moderating agent that enhances the association between functional quality and patient satisfaction, preventing ambiguity, misconceptions, and improving patient-caregiver relations.^[7] Empirical research has continuously confirmed the significance of the quality of services as a trigger for patient satisfaction. There has been evidence, including studies where it was depicted that functional quality directly determines the way patients evaluate healthcare services.^[8] Ali *et al.*^[2] illustrated that aspects of service quality like empathy, reliability, and assurance all favorably contribute

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towards patient satisfaction by enhancing the experiences of the patients in healthcare. Similarly, Gu *et al.*^[9] discovered that hospitals that are responsive and ensure good patient-provider relationships have improved patient satisfaction levels. The influence of tangibility, for instance, clean well-kept medical facilities and new equipment, has also been highlighted as an area that boosts patients' trust and confidence in the healthcare system.^[10]

A second line of studies has investigated trust in healthcare relationships. Custers *et al.*^[4] posited that trust in physicians is pivotal to patient compliance with treatment regimens and satisfaction. Trusters of physicians are more compliant with medical recommendations, minimizing treatment resistance and enhancing health outcomes.^[11] Kerstan *et al.*^[12] also confirmed this association in a meta-analysis, with the conclusion that trust is among the strongest predictors of patient satisfaction. Further, trust mediates the association between service quality and patient satisfaction, meaning high-quality services promote trust, which in turn increases patient satisfaction.^[13]

Despite widespread research on patient satisfaction and service quality, there are still areas left to be researched. For example, while most research has focused on the direct link between functional quality and satisfaction, there are few studies that have explored the mediating variables for this relationship.^[14] Trust has been postulated in some research to play a mediating role, but little empirical evidence has been documented across various healthcare settings.^[15] Knowing whether or not trust either fully or partially mediates such a relationship could offer further understanding of how patients form satisfaction with healthcare services.

Second, although effective communication has been identified as a key element of service quality, its moderator role in the functional quality-patient satisfaction relationship has not been extensively explored.^[16] Most research considers communication as an independent predictor of satisfaction instead of an influence on the strength of other relationships.^[17] Examination of communication as a moderator may assist in determining conditions under which functional quality exerts a greater or lesser influence on satisfaction.^[18]

Third, prior research has generally examined particular healthcare environments, for example, hospitals or clinics, without accounting for differences between different medical settings.^[14] Future studies need to examine if the impact of functional quality, trust, and communication varies by healthcare contexts, for instance, public versus private hospitals or urban versus rural medical centers. Closing these gaps would enhance the more detailed understanding of the determinants of patient satisfaction. Having identified the gaps, this research seeks to accomplish the following objectives:

1. To explore the influence of functional quality on patient satisfaction.
2. To explore the mediating effect of trust between functional quality and patient satisfaction.
3. To explore if effective communication acts as a moderator between functional quality and patient satisfaction.

There are significant theoretical and practical consequences to such a finding. Through the incorporation of the moderating influence of communication and the mediating influence of trust, it theoretically expands on our understanding of patient satisfaction, both of which were insufficiently examined in existing studies. In practice, the result of the study will provide healthcare organizations with an understanding of how service quality improvement can be used to enhance patient trust and satisfaction. Hospitals and clinics can use this data to develop better patient engagement strategies, train healthcare providers in effective communication, and establish trust-building relations with patients. Eventually, this study contributes to the ongoing efforts to improve healthcare quality and patient experience.

These ideas serve as the foundation for this research and provide a theoretical reason for the claimed links. According to the SERVQUAL model,^[19] service quality perceptions are primarily influenced by tangibility, dependability, empathy, assurance, and responsiveness. These are the dimensions that have a direct impact on patient satisfaction, rendering SERVQUAL an appropriate framework for use in this study. Furthermore, Social Exchange Theory^[20] emphasizes reciprocal interactions to explain how trust impacts on service quality are mediated. Patients trust doctors based on their good experiences and perceived competence, which reinforces their happiness with healthcare services.^[2] In addition, communication theory supports the moderating role of good communication in enhancing patient satisfaction. Empathetic and straightforward communication reduces ambiguity while increasing the impact of functional quality characteristics on satisfaction. Through these theoretical perspectives, this study aims to provide a more comprehensive understanding of how communication, trust, and service quality interact to influence patient happiness. These discoveries will add to both academic research and practical improvements in healthcare service delivery.

LITERATURE REVIEW

Functional quality of healthcare is an important factor that determines patients' satisfaction and, in turn, their general impression of the healthcare services provided.^[4] Functional quality encompasses the way healthcare services are performed and includes issues like communication, responsiveness, empathy, reliability, and the interpersonal ability of healthcare providers.^[5] Whereas technical quality deals with the clinical correctness of treatment and diagnosis, functional quality deals with patient experience, comfort, and trust in health professionals.^[8] It has always been found in studies that if patients experience high functional quality, they are likely to report more positive experiences and greater satisfaction levels.^[21] Effective communication, for example, creates a sense of rapport and decreases anxiety in patients, whereas responsiveness to patients' needs improves trust and loyalty.^[22] Also, empathy shown by healthcare providers helps a great deal

in improving the emotional state of a patient and makes him/her feel important and respected.

A number of empirical studies have also underlined the direct and indirect impacts of functional quality on patient satisfaction.^[17] Dimensions of medical staff attitude, waiting time, health professionals' clear explanations, and being able to answer patient questions are important factors that shape the levels of satisfaction.^[1] For instance, patients who undergo shorter waiting times and get straightforward, empathetic communication from doctors and nurses are more likely to be satisfied with the care, even when their health outcomes are still unclear.^[3] Further, hospitals that focus on ongoing training in soft skills and patient care tend to perform better than those that focus only on technical superiority.^[23] This association between functional quality and satisfaction further applies to patient loyalty, wherein positive experiences stimulate repeat visits and long-term participation with a specific healthcare provider.

Functional Quality and Patient Satisfaction

Functional quality in health care describes the non-clinical processes of service delivery that influence a patient's general experience and perception of care.^[24] It encompasses a number of dimensions, including tangibility, reliability, empathy, assurance, and responsiveness, all converging to service excellence.^[25] Tangibility is used to describe the actual facilities and setting available, while reliability reflects consistency and dependability of health care services.^[5] Empathy involves the ability of healthcare providers to understand and address patient issues, while assurance involves the quality and courtesy of healthcare practitioners in instilling confidence.^[8] Responsiveness is related to how prepared healthcare providers are to serve patients quickly and effectively.^[9] All these aspects play a vital role in shaping patient experiences, influencing their satisfaction with medical services. High functional quality has been linked to greater trust in healthcare organizations and better adherence to treatment plans, testifying to its pivotal role in patient satisfaction.^[4]

Empirical studies have consistently demonstrated the high relationship between functional quality and patient satisfaction. For instance, Najim *et al.*^[21] found that hospitals with enhanced functional quality e.g., courteous staff, clean environment, and prompt response to patient needs registered significantly higher patient satisfaction scores. Similarly, Pouliopoulou *et al.*^[26] noted that healthcare organizations with service-oriented interactions witness enhanced patient loyalty and positive word-of-mouth. In addition, the relationship between functional quality and satisfaction has been found to exist in various healthcare environments, with research indicating that patients who experience greater levels of empathy, assurance, and responsiveness are more likely to have stronger emotional connections with their healthcare providers, resulting in greater overall satisfaction.^[24] Given this evidence, one can reasonably predict that functional quality has a marked impact on patient satisfaction by

determining their attitudes regarding service performance and care quality. Thus, we hypothesize that:

H1: Functional quality has a significant impact on patient satisfaction.

Trust in Doctor and Patient Satisfaction

Since it influences the patient's comfort, confidence, and compliance with medical guidance, trust in physicians is an essential element in measuring patient satisfaction. Trust is the confidence that the physician is doing his or her best for the patient and is competent, honest, and ethical.^[6] Trust is built over time by good interactions, open communication, and ongoing care. Trusting patients are also more likely to disclose sensitive health information, adhere to treatment, and be less anxious when in the doctor's office.^[10] Trust also serves as a psychological buffer, reassuring patients that their well-being is of the utmost importance even in complex or uncertain medical conditions.^[9] As a determinant of the doctor-patient relationship, trust is a significant predictor of patient satisfaction, influencing their emotional and cognitive evaluation of healthcare experiences.^[13]

Empirical evidence supports the fact that patient trust in physicians exercises strong influence on patient satisfaction. Rezaie-Chamani *et al.*^[27] found, in a study, that more trusting patients reported greater satisfaction with their healthcare even when presented with bad news. Similarly, Eliza *et al.*^[28] conducted a meta-analysis that found that trust was a strong predictor of short-term and long-term patient satisfaction across various healthcare settings. In addition, trust improves patients' perceptions of justice, minimizing skepticism regarding treatment recommendations and improving their compliance with medical advice.^[16] Given the empirical evidence for the positive impact of trust on patient satisfaction consistently, it follows that it would be reasonable to suggest that encouraging trust in physicians will result in improved healthcare experience and more resilient patient-provider relationships.^[11] Thus, we hypothesize that:

H2: Trust in doctor has a significant impact on patient satisfaction.

Trust in Doctor as Mediator

Different studies have confirmed that trust plays a mediating function in between patient happiness and service quality. Functional quality dimensions like responsiveness, empathy, and dependability have been proven to have a positive effect on patient trust, which in turn increased overall satisfaction.^[29] Equally, Wang *et al.*^[30] presented empirical data that indicated trust as a psychological bridge connecting patient satisfaction and healthcare service quality, supporting the premise that patients perceiving better service quality would have more trust in their medical professionals. Also, Li *et al.*^[31] underscored that trust is important in the willingness of patients to comply with medical treatment and keep going back to the same provider, reinforcing the connection between functional quality and satisfaction further. Based on these results, it is clear that functional quality enhances trust, which in turn increases patient satisfaction.^[13]

Based on these empirical findings, it can be posited that functional quality increases patient satisfaction both directly and indirectly through trust establishment.^[27] If patients receive high responsiveness, empathy, and assurance from healthcare professionals, they tend to trust their physicians, ultimately influencing their satisfaction with the received care.^[11] Trust also resolves uncertainty and anxieties patients can have regarding outcomes of treatment, and supports favorable views of service quality.^[10] This indicates that trust is a major vehicle by which functional quality becomes increased patient satisfaction, since patients who believe in their doctors are more likely to see the healthcare process as effective and rewarding.^[9] With this, the following hypothesis is proposed:
H3: Trust in doctor mediates the relationship between functional quality (and patient satisfaction).

Effective Communication as Moderator

Effective communication has been similarly well-documented as critical to maximizing the influence of functional quality on patient satisfaction in healthcare literature. Fitriah^[7] research showed that effective communication enhances the link between patient satisfaction and healthcare service quality by confirming that patients have a clear understanding of medical procedures, diagnoses, and treatment. In addition, Li *et al.*^[31] determined that patients receiving clear and compassionate communication from their healthcare providers reported higher satisfaction with medical care despite the severity of their health problems. Likewise, Najim *et al.*^[21] asserted that effective communication promotes improved patient-provider relationships that minimize misunderstandings and increase perceived reliability and responsiveness of healthcare. These results imply that communication serves as a vital determinant influencing the degree to which functional quality results in beneficial patient experiences.^[8]

With the established connection between patient satisfaction and functional quality, it should be expected that effective communication reinforces such a relationship.^[30] When healthcare providers communicate effectively, patients are likely to experience high levels of responsiveness, assurance, and empathy, which in

turn reinforces their satisfaction with care.^[1] Moreover, communication fills any gaps in service provision through assurance that concerns of patients are heard and attended to, further increasing the effect of functional quality dimensions on satisfaction.^[32] This indicates that communication does not exist independently but works to reinforce the helpful effects of functional quality so that patients are more grateful for the care they receive.^[33] The following hypothesis is therefore postulated based on this:
H4: Effective communication moderates the relationship between functional quality and patient satisfaction.

Theoretical Framework Supporting the Research

Theoretical basis in understanding the dyads in this study comes from the SERVQUAL model and Social Exchange Theory (SET) both of which give a unified theory of describing how functional quality impacts patient satisfaction through trust and effective communication.^[19] SERVQUAL model identifies five major areas such as tangibility, reliability, empathy, assurance, and responsiveness all of which influence perceptions of service quality and subsequent customer satisfaction. The model (Figure 1) is especially useful in healthcare environments, where interpersonal quality and delivery of service determine patient outcomes.^[28] In addition, Social Exchange Theory^[20] states that all relationships are built upon mutual transactions, where patients develop trust for their healthcare staff based on experienced fairness, quality, and satisfying encounters. Trust, on the other hand, serves as a mediator between functional quality and satisfaction because patients who trust their doctors are likely to feel comforted, comply with medical instructions, and report greater satisfaction.^[2] Communication theory further suggests that effective communication improves patient-provider relationships by reducing uncertainty and increasing clarity, thereby moderating the influence of functional quality on satisfaction.^[30] Thus, integrating these theoretical positions offers a strong argument for examining the moderating effect of effective communication and the mediating effect of trust in the functional quality-patient satisfaction relationship, offering a holistic explanation of the processes underlying patient experience in healthcare environments.

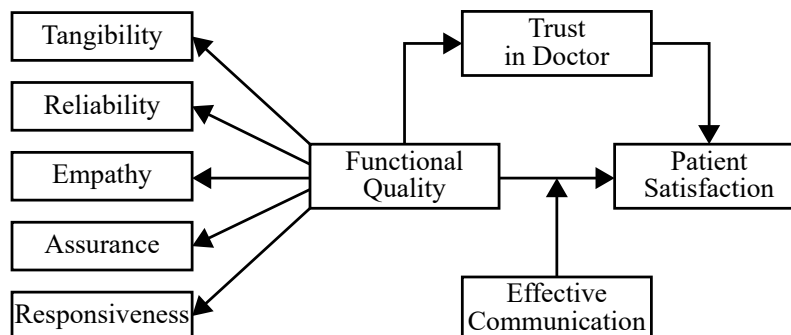


Figure 1: Conceptual Framework.

METHODOLOGY

This study used a quantitative study design to look at the effects of functional quality on patient satisfaction, using confidence in the doctor as a mediator and effective communication as a moderator. The study used a structured survey technique to collect primary data from people who had recently received healthcare services. To quantify some aspects of service quality and their influence on patient satisfaction, a questionnaire design was used to allow for systematic data collection and measurement consistency. The survey items (Table 1) were borrowed from existing scales in earlier research to ensure the reliability and validity of measuring the constructs. The sample included 214 respondents who were picked through purposive sampling to try and capture all the respondents in terms of their own experience of health care services. The participants had to fulfill the inclusion criterion of having received medical consultation or treatment within the past six months so that they could answer based on their recent experience with healthcare providers. Data collection was achieved using self-completed questionnaires that were dispensed at hospital waiting rooms and outpatient clinics in order to sample differently at different points of touch with the services. The study purpose was informed to the participants, and they were assured of confidentiality prior to answering the survey in an attempt to obtain truthful and unbiased responses.

Table 1: Questionnaire Profile.

Variables	No of Items	Source
Functional Quality	18	Lu <i>et al.</i> ^[34]
Trust in Doctor	3	Mei <i>et al.</i> ^[8]
Effective Communication	9	Versluijs <i>et al.</i> ^[18]
Patient Satisfaction	20	Tang <i>et al.</i> ^[35]

Smart-PLS, a variance-based structural equation modeling (SEM) software, was employed to test the suggested correlations. Partial least squares SEM was chosen since it is effective in complex models with mediation and moderation effects and performs well with lower sample sizes. For the purpose of concept validity and internal consistency, the measuring scales were cross-validated with Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE). Discriminant validity was also assessed through the heterotrait-monotrait (HTMT) ratio to confirm that the constructs are separate from one another. The results of the structural model were analyzed through route analysis, and direct, indirect, and interaction effects between the variables of study were estimated. Bootstrapping with 5,000 resamples was employed to produce statistically inference-based confidence intervals and more precise coefficient estimates. Model fit was assessed based on appropriate measures like R², adjusted R², Q² predict, and standardized root mean square residual (SRMR) to gauge its explanatory and predictive significance. By such an approach, the research provided genuine statistical analysis, provided empirical evidence for the postulated relationships, and

enriched a full understanding of the variables affecting patient happiness in the hospital environment.

RESULTS

Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE) reliability and validity estimates for the research variables are given in Table 2. The Cronbach's alpha values are greater than the minimum requirement of 0.7, reflecting high internal consistency, confirming the reliability of all constructions.^[36] Among the variables, patient satisfaction has the highest reliability (0.958), followed by effective communication (0.916) and trust in doctor (0.861) as they have high internal consistency. Composite reliabilities for each of the constructs are also greater than the accepted level of 0.7, which indicates the strong reliability of the variables. The AVE scores for convergent validity show that all the constructs have scores of 0.5 and above, suggesting that items are effective measures of their respective constructs. Responsiveness has the largest AVE (0.829), indicating that a high percentage of its variance is explained by its respective indicators, while patient satisfaction has the smallest AVE (0.561), which, although smaller than in some constructs, remains within the acceptable range for convergent validity. In general, the reliability and validity indices show that the constructs are well-measured and strongly support their incorporation in the model (Figure 2).

Table 2: Variables Reliability and Validity.

	CA	CR	AVE
Assurance	0.836	0.885	0.611
Empathy	0.811	0.888	0.726
Effective Communication	0.916	0.931	0.599
Patient Satisfaction	0.958	0.962	0.561
Responsiveness	0.793	0.906	0.829
Reliability	0.867	0.904	0.655
Tangibility	0.838	0.902	0.755
Trust in Doctor	0.861	0.915	0.783

Note.

CA=Cronbach's alpha, CR= Composite Reliability, AVE= Average variance extracted

Table 3 shows the outer loadings of every item on its corresponding construct, measuring the strength of individual indicators in capturing the constructs. All item loadings are above the minimum threshold of 0.6, reflecting acceptable indicator reliability.^[37] Within the construct of assurance, the maximum loading is found for item A4 (0.841), and the minimum is found for A5 (0.583), indicating A5 contributes comparatively lesser to the construct but is still within the threshold. Likewise, when it comes to empathy, the maximum loading is found for E2 (0.887), confirming its strong contribution to the construct. Effective communication, one of the moderating variables in the research, has strong item loadings throughout, between 0.720 (EC7, EC8, EC9) and 0.827 (EC6), thereby validating the relevance of communication items in the model. Patient satisfaction items also possess acceptable loadings, with PS1 (0.800) and PS5 (0.836) ranking among the highest indicators. Conversely, PS16 (0.616)

and PS14 (0.641) have comparatively lower loadings, indicating slightly less contribution but still acceptable levels. Responsiveness, reliability, tangibility, and trust in doctor also show high indicator reliability, with all items loading at more than 0.7. Of particular interest, trust in

doctor shows high loadings on all three indicators, with TD3 demonstrating the highest loading (0.916), affirming its reliability within the model. The high outer loadings across constructs show that the chosen items are valid and accurately measure their respective latent variables.

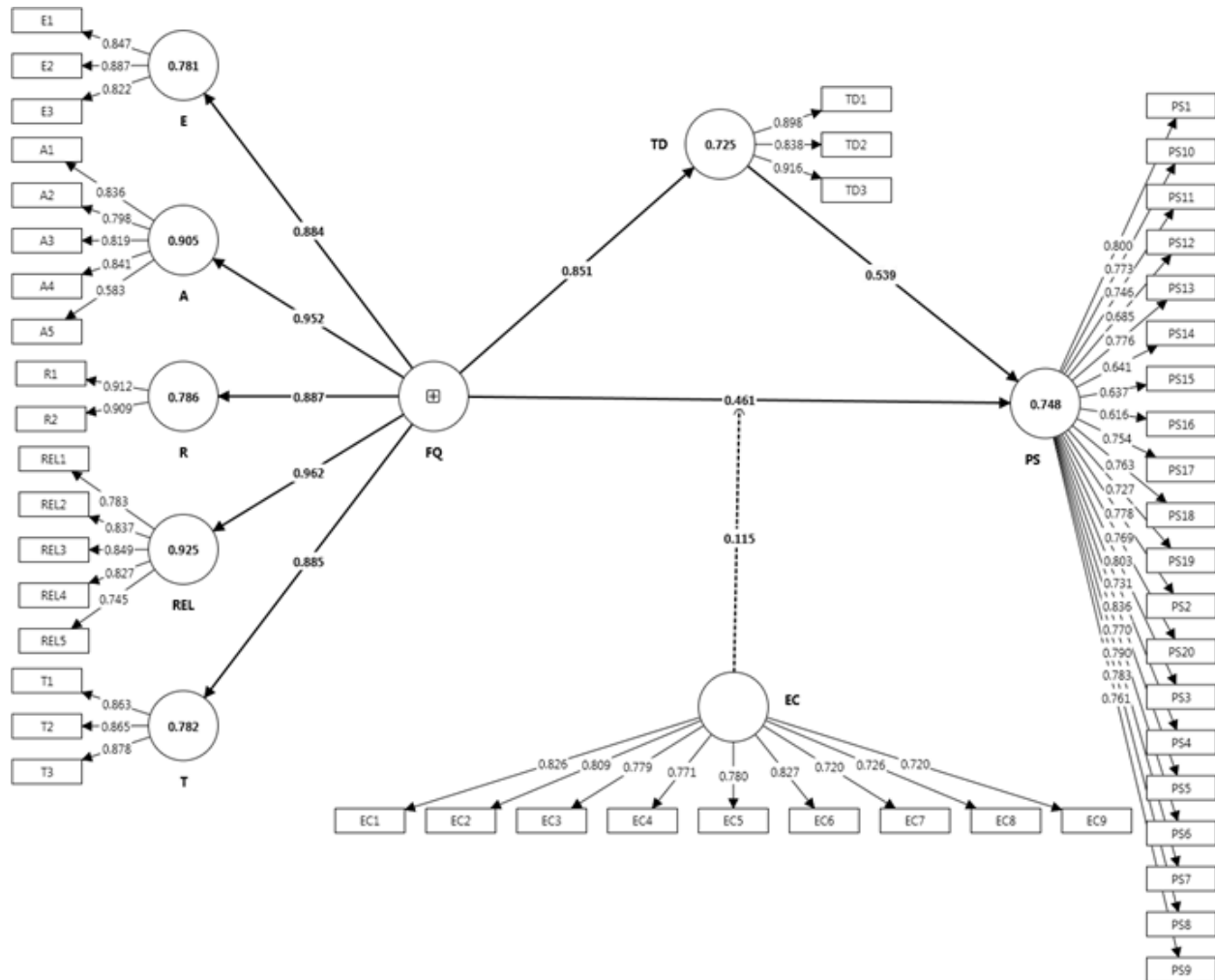


Figure 2: Estimated Model.

Table 3: Outer Loading.

Variables	Items	Outer Loading
Assurance	A1	0.836
	A2	0.798
	A3	0.819
	A4	0.841
	A5	0.583
Empathy	E1	0.734
	E2	0.887
	E3	0.822
Effective Communication	EC1	0.826
	EC2	0.809
	EC3	0.779
	EC4	0.771
	EC5	0.780
	EC6	0.827
	EC7	0.720
	EC8	0.726
	EC9	0.720

Table 3: Outer Loading.

Variables	Items	Outer Loading
Patient Satisfaction	PS1	0.800
	PS10	0.773
	PS11	0.746
	PS12	0.685
	PS13	0.776
	PS14	0.641
	PS15	0.637
	PS16	0.616
	PS17	0.754
	PS18	0.763
	PS19	0.727
	PS2	0.778
	PS20	0.769
	PS3	0.803
	PS4	0.731
	PS5	0.836
	PS6	0.770
	PS7	0.790
	PS8	0.783
Responsiveness	PS9	0.761
	R1	0.814
	R2	0.909
Reliability	REL1	0.721
	REL2	0.809
	REL3	0.784
	REL4	0.818
	REL5	0.745
Tangibility	T1	0.782
	T2	0.865
	T3	0.878
Trust in Doctor	TD1	0.898
	TD2	0.838
	TD3	0.916

Table 4 reports the heterotrait-monotrait (HTMT) ratio of correlations, employed to evaluate discriminant validity. The HTMT values reflect the level of similarity between constructs, and values lower than 0.9 are deemed acceptable.^[38] The findings reveal that all constructs preserve discriminant validity, as none of the HTMT values surpass the critical value. Assurance and empathy have the lowest correlation (0.391), implying that these constructs are highly differentiated. Conversely, responsiveness and trust in doctor possess the greatest HTMT value (0.924), representing a strong association but still within

acceptable bounds. Good communication possesses strong correlations with various constructs, notably with empathy (0.836) and reliability (0.847), reaffirming communication’s significance in patient satisfaction. Likewise, patient satisfaction reveals strong associations with functional quality dimensions like responsiveness (0.827) and reliability (0.817), consistent with theoretical predictions. The results prove each measure captures a specific concept, verifying the model’s validity and guaranteeing there is no undue overlap among variables.

Table 4: Discriminant Validity (HTMT).

	A	E	EC	PS	R	REL	T	TD
Assurance								
Empathy	0.391							
Effective Communication	0.601	0.836						
Patient Satisfaction	0.863	0.835	0.826					
Responsiveness	0.421	0.826	0.803	0.827				
Reliability	0.221	0.456	0.847	0.817	0.542			
Tangibility	0.528	0.825	0.799	0.796	0.852	0.707		
Trust in Doctor	0.775	0.561	0.842	0.816	0.924	0.890	0.862	

The model’s fit statistics, indicating the explanation and prediction validity of the structural model (Figure 3), are given in Table 5. With 0.748 for R2, which indicates that 74.8% of patient satisfaction variation is explained by the

independent variables, the R2 measurements show that the predictor factors explain patient satisfaction strongly. Similarly, doctor trust possesses a highly positive R² value of 0.725, confirming its positive correlation with

functional quality and communication. The adjusted R² values, which take into account the number of predictors in the model, are also stable, again confirming the model's strength. Moreover, Q² prediction scores of patient satisfaction (0.729) and doctor trust (0.725) are of very high predictive significance, considering figures above zero validate the model to forecast outcomes. The 0.065 value for the standardized root mean square residual (SRMR) is below the threshold minimum of 0.08 and thus implies proper model fit coupled with no large residual

discrepancies within the fitted as opposed to projected covariance matrices. The global model fit indices indicate that the suggested research framework accounts well for patient satisfaction and trust, and as such, confirms the study's theoretical and empirical significance.

Table 5: Model Goodness of Fit Statistics.

Construct	R ²	Adjusted R ²	Q ² Predict	SRMR
Patient Satisfaction	0.748	0.744	0.729	0.065
Trust in Doctor	0.725	0.724	0.725	

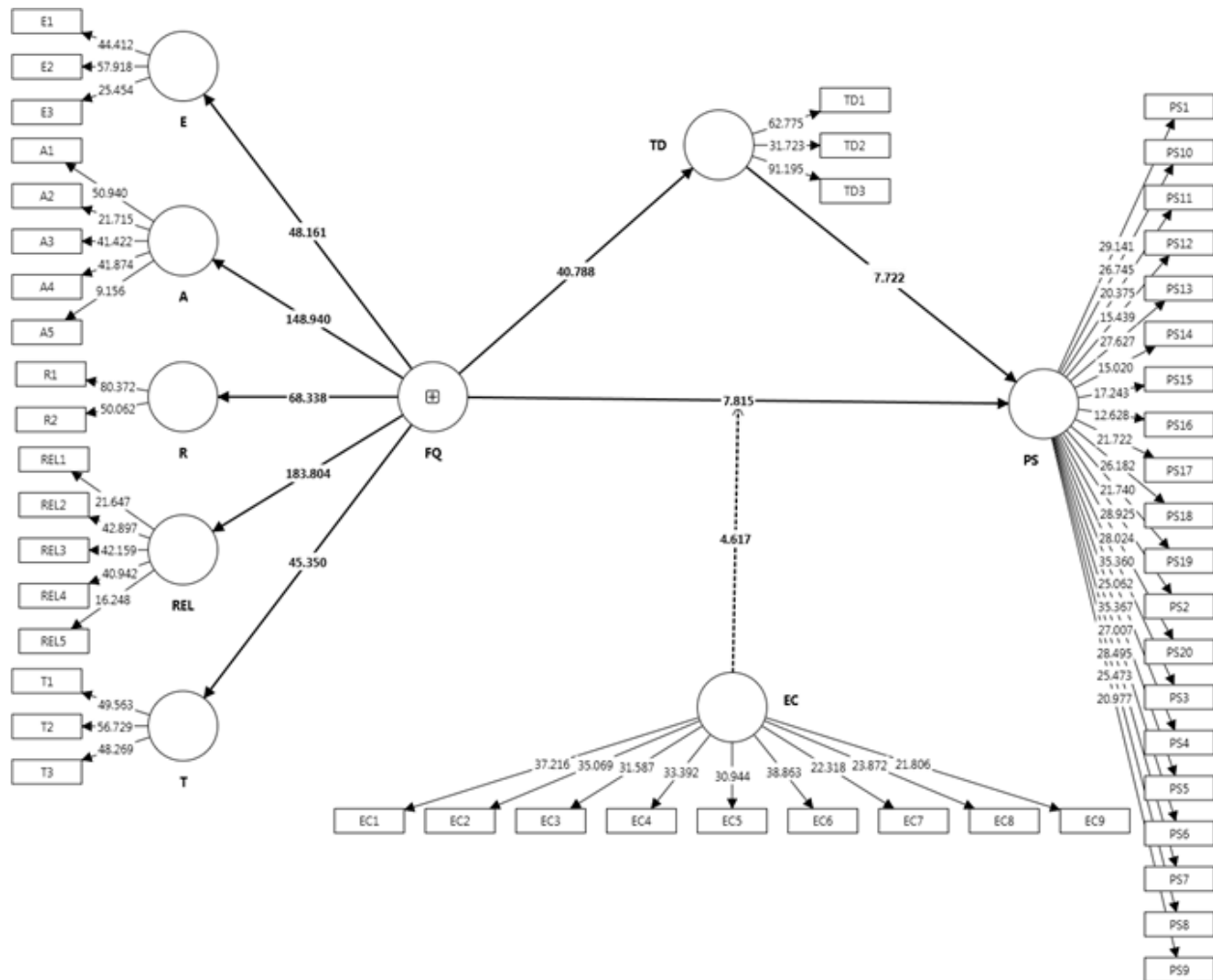


Figure 3: Structural Model for Path Analysis.

Table 6 provides path analysis, and it signifies hypothesized relationships' strength and significance. It supports the findings that functional quality significantly impacts patient satisfaction ($\beta = 0.461, t = 7.815, p = 0.000$) because a case in support of the view that service quality dimensions are focal drivers of patient experiences holds true. Doctor trust also significantly influences patient satisfaction ($\beta = 0.593, t = 7.722, p = 0.000$), affirming its important role in healthcare interaction. The mediation analysis again shows that doctor trust partially mediates the functional quality and patient satisfaction relationship ($\beta = 0.387, t = 5.837, p = 0.000$), meaning that although functional quality

independently influences satisfaction, it has a greater effect when the patient establishes trust in the doctor. In addition, the test of moderation indicates that communication tightens the link between patient satisfaction and service quality ($\beta = 0.115, t = 4.617, p = 0.000$), affirming the existence of communication in the patient experience through ensuring that service quality impact is amplified. All the paths show statistical reliability with a p-value less than 0.05, affirming the strength of the hypothesized relationships. The research offers empirical verification of the theory, highlighting the significant contribution of trust and communication to healthcare service quality and patient satisfaction.

Table 6: Path Analysis.

Hypothesis	Coefficients	Standard Errors	t-values	p-values
Functional quality has a significant impact on patient satisfaction.	0.461	0.059	7.815	0.000
Trust in doctor has a significant impact on patient satisfaction.	0.593	0.592	7.722	0.000
Trust in doctor mediates the relationship between functional quality and patient satisfaction.	0.387	0.066	5.837	0.000
Effective communication moderates the relationship between functional quality and patient satisfaction.	0.115	0.025	4.617	0.000

DISCUSSION

The changing healthcare environment requires not just clinical excellence but a service quality commitment that promotes trust, communication, and general patient satisfaction. The goal of this study was to clarify the intricate interplays between functional quality, trust, communication, and patient satisfaction and provide empirical evidence on drivers of a high-quality healthcare experience. The findings corroborate that aside from medical proficiency, how healthcare services are delivered by being responsive, empathetic, and communicatively competent, tremendously affects patient attitudes and satisfaction. The fact that all of the hypotheses proposed were accepted shows that patients evaluate their healthcare experience in general, considering both tangible service quality attributes and the interpersonal factors influencing trust and communication. Through the confirmation of the direct, mediating, and moderating effects among these variables, this study contributes to the broader knowledge base on patient-centered care, highlighting the need for health institutions to incorporate both structural and relational improvements in their service models. These findings not only confirm current theory but provide practical applications for healthcare improvement, ensuring patients feel respected, informed, and trusting in their interactions with health practitioners.

The results of the present research confirm that functional quality plays a vital role in patient satisfaction, as indicated by the first hypothesis. As suggested by previous research,^[39] patient perceptions of healthcare services are affected by tangibility, dependability, empathy, assurance, and responsiveness. Since functional quality plays a significant role in determining satisfaction, patients are highly concerned with both physical, e.g., well-stocked medical facilities, and intangible, e.g., provider empathy and responsiveness. The verification of this hypothesis also supports the assumption that a health facility's ability to deliver consistent, reliable, and patient-focused care is instrumental in establishing levels of satisfaction.^[28] This finding supports studies by Defar *et al.*^[5], where they pointed out that hospitals emphasizing functional quality are likely to receive higher patient loyalty and retention. Furthermore, the highly positive outcome of this study suggests that healthcare managers must focus on developing these aspects of service quality in order to enrich the patient experience. Because patient satisfaction often correlates with word-of-mouth and treatment adherence, the results emphasize that investing in structural improvements as well as training staff can be used to optimize functional quality.

The second hypothesis is also supported by the study, illustrating that patient satisfaction is highly influenced by trust in doctors. This is consistent with prior research showing that trust is an essential element of successful healthcare encounters, influencing patient attitudes and behavioral responses.^[40] The findings justify the conclusion that trust is a psychologic armor whereby patients may be secure and assured with their healthcare decisions.^[25] The implication is that healthcare providers who foster trust through transparency, expertise, and ethics make a worthwhile contribution to patient satisfaction. Apart from that, the conclusions of this study are an extension of existing research by revealing that trust not only increases satisfaction, but also guarantees patients' compliance with medical instructions and taking advantage of subsequent care from the same doctor.^[17] The validity of the hypothesis shows the necessity of establishing good doctor-patient relationships through good communication, professional behavior, and patient-centered practice. These findings are of applicative value, highlighting the importance of hospital and clinic institutions enacting policies in favor of trust-building attitudes like complete informing of patients, shared decision-making, and medical communication empathy.

In addition, the third hypothesis that trust in doctors mediates the relationship between functional quality and patient satisfaction is also supported by the findings. This implies that while functional quality directly affects patient satisfaction, its effect is further boosted through the establishment of trust. These results further resonate with previous studies by Friedel *et al.*^[41], which emphasized that trust was an essential psychological mechanism that connected service quality to patient outcomes. The mediation effect seen in this study reflects that even where there is high functional quality from healthcare facilities, patient satisfaction may fail to achieve its full capacity if trust has not been formed. This conforms to Social Exchange Theory,^[20] which states that patients react towards quality healthcare service with increased trust, leading to increased satisfaction. The findings further indicate that medical professionals not only have to focus on improving functional quality but must also actively initiate patient trust through maintaining reliability, demonstrating genuine concern, and maintaining ethical integrity during medical interventions. By integrating trust-building activities into service quality improvement programs, healthcare organizations are able to achieve higher patient satisfaction, higher patient adherence to treatment plans, and stronger patient-provider relationships, ultimately leading to better healthcare outcomes.

The results of this research validate the fourth hypothesis, which asserted that communication would serve as a mediating variable between the impact of functional quality and patient happiness. The findings are consistent with the evidence that while functional quality has a direct and positive impact on patient satisfaction, its impact is significantly enhanced when healthcare workers communicate effectively, empathetically, and clearly. This is supported by earlier findings which indicate that communication is a vital element that enhances patient experience and ensures patients completely comprehend their condition, treatment plans, and their healthcare.^[7] The confirmation of this hypothesis means that although healthcare institutions offer high functional quality in terms of tangible structures, reliability, and responsiveness, patient satisfaction would not be maximized without successful communication. This concurs with Ali *et al.*^[2], who concluded that patients become more satisfied with their healthcare process when the practitioners listen attentively, show empathy, and solve issues in a clear way. The robust moderation effect demonstrated by this research implies that communication is essential in closing the gap between service quality and patient expectations and lends support to the contention that healthcare interactions are not only required to be technically competent but emotionally and socially present as well. In addition, these results emphasize the importance of health care professionals being taught effective communication skills like listening, patient-centered language, and the utilization of simple, non-scientific vocabulary to allow patients to grasp and become less apprehensive. Hospitals and clinics can enhance patient satisfaction outcomes by incorporating communication methods into health care service provision. The functional quality, communication, trust, and patient satisfaction interdependence is established through testing each of the five hypotheses. The research discovers that although high functional quality is a prerequisite for a positive patient experience, its complete effect only takes place when paired with effective communication strategies and treatments that build trust. A key link to functional quality and patient satisfaction is trust, that in a situation where patients need to reap in full the full quality of treatment they are receiving, they must be assured of being confident, trustworthy, and emotionally nurtured. Communication is also a key driver, raising the impact of functional quality and creating better patient-provider relationships. These findings not only validate established theoretical models, like SERVQUAL and Social Exchange Theory, but also highlight the significance of an integrated model in healthcare service provision. In the future, healthcare organizations need to realize that enhancing patient satisfaction is not just a matter of operational efficiency—it takes a culture of trust, empathy, and transparency of communication. By investing in trust programs, making communications easier to navigate, and continuous service excellence improvement, the health providers make patient satisfaction not a product, but rather an ongoing pursuit for care superiority.

CONCLUSION

This research reveals the determinants of patient satisfaction, underscoring the key role of functional quality, doctor trust, and communication in shaping patient experiences within healthcare environments. The research indicates that service quality characteristics of tangibility, dependability, responsiveness, assurance, and empathy greatly enhance patient satisfaction, and it is therefore imperative to have high levels of service in hospitals. In addition, physician trust is identified as a mediating variable, and thus, beyond the technical and structural aspects of healthcare, individuals desire honest and reliable relationships with their doctors. In addition, the moderating effect of effective communication implies that open, empathetic, and responsive communication enhances the correlation between functional quality and patient satisfaction, which would mean that communication skills need to be incorporated into healthcare service models. The results of the study have practical and theoretical implications, contributing to the service quality research stream and offering practical guidance for decision-makers and healthcare practitioners. The cross-sectional nature of this study and reliance on self-reports are just two of its limitations, which could be overcome with future research utilizing longitudinal measurement, larger sample sizes, and other measures. In spite of these constraints, the research sets a good ground for comprehending the complex dynamics between patient happiness, communication, trust, and service quality and the necessity of an integrated method of healthcare delivery. Healthcare facilities in the future will have to focus on developing both structural service quality and interpersonal relations so that they can create a patient-centered environment on the foundation of trust, improved communication, and thus increased patient satisfaction.

Implications

The findings of this research hold significant theoretical implications in that they position patient satisfaction rates against theories of communication, trust, and service quality. This research extends the SERVQUAL model initially by establishing empirical proof that the functional quality factors of assurance, responsiveness, empathy, tangibility, and reliability interact with communication and trust as well as being directly relevant in predicting patient satisfaction. This reinforces the argument that healthcare quality is multidimensional and that it requires technical competence and relational engagement to realize optimal patient benefits. The research also adds empirical support to Social Exchange Theory through the confirmation of trust in doctor as a key mediating variable. The results highlight that patients are happier with health care services when they perceive that their providers are competent, reliable, and emotionally supportive, supporting the assumption that trusting relationships lead to positive mutual interaction. Moreover, the research contributes to Communication Accommodation Theory by showing

that communication quality acts as a mediator between service quality and patient satisfaction. The findings suggest that when health professionals' communication style conforms to patients' expectations and standards—to be clear, empathetic, and responsive—patients are more likely to evaluate high service quality and increased satisfaction. The present research also bridges theoretical extensions in healthcare literature by synthesizing the above frameworks into an integrative model specifying the dynamics between structural service quality, interpersonal trust, and communication effectiveness. By demonstrating the robust moderating role of communication, the study disconfirms dominant models that focus predominantly on service quality attributes, emphasizing that healthcare delivery must be dealt with in totality. In addition, the large R^2 values indicating the robust predictive power of the model point to the strength of these theoretical relationships and their applicability in real-world situations. These findings prompt subsequent studies to investigate other contextual variables, such as patient characteristics and cultural variations, to further define the effect of communication and quality of service on patient satisfaction within different healthcare settings.

For legislators, healthcare providers, and institutions that desire to enhance patient happiness through enhanced communication, building confidence, and service quality, this study has significant implications. Firstly, the establishment of the fact that functional quality positively affects patient satisfaction highlights the significance of hospitals and clinics continually investing in facilities, employee training, and service delivery processes that facilitate tangibility, reliability, responsiveness, assurance, and empathy. Health care professionals have to make sure that hospitals are well maintained, health care staff are well trained in patient-centered care, and procedures are effective to minimize patient waiting times and enhance service reliability. The study also points out the central mediating role of trust in doctor, with the research suggesting that hospitals need to seek long-term patient-health provider relationships through transparent, ethical, and empathetic medical practices. This can be supported through continuity of care, encouraging patient participation in decision-making about treatment, and patient feedback mechanisms to ventilate their concerns and experiences. Further, the significant moderating role of effective communication implies that health workers should be trained in interpersonal skills, listening, and clear, non-jargon explanation so that patients fully understand their conditions and treatment protocols. Hospitals can integrate structured communication protocols, such as shared decision-making models and patient counseling sessions, into their practice to increase trust and improve patient experience. Healthcare policymakers also have implications from these findings, and they ought to develop guidelines and accreditation standards that encourage both technical service quality and communication effectiveness. For example, hospitals can be required to conduct regular patient

satisfaction analysis, provide ongoing communication training to healthcare staff, and implement technology-driven solutions like telemedicine consultations and computerized patient education modules to improve accessibility and transparency. As both functional quality and communication play an important role in influencing patient satisfaction, healthcare managers need to adopt a holistic approach that balances both operational effectiveness and empathetic, patient-focused interactions. Lastly, by resolving these factors, healthcare facilities can enhance their reputation in services, increase patient outcomes, and establish long-term patient loyalty, leading to a more effective and sustainable healthcare system.

Limitations and Future Directions

Despite the significant findings of this study, it should be noted that several limitations suggest possible lines of further research. The first is that the study relies to a significant extent on cross-sectional data, assessing patient opinion at one time, and therefore cannot determine causality between functional quality, trust in doctor, effective communication, and patient satisfaction. Longitudinal designs may be utilized in future research to assess how these relationships develop over time and whether trust and patient satisfaction shift as they continue to interact with medical professionals. Secondly, since the study was conducted in a specific healthcare facility, the findings might not be as relevant across other healthcare systems, places, or cultures. Patient expectations and satisfaction can vary significantly across different healthcare environments depending on economic status, healthcare policy, and cultural attitudes towards medical practitioners. Future studies must investigate these relationships in different geographical regions, both in developing and developed healthcare systems, to determine whether the findings are transferable across different institutional and cultural settings. Additionally, while the study focused on significant dimensions of service quality and interpersonal factors, other likely determinants of patient satisfaction, such as emotional status, previous clinical experience, and availability of healthcare services, were not explicitly examined. Follow-up studies can add these variables to develop a more comprehensive model of patient satisfaction, particularly by entering psychological and social determinants that may affect patient perceptions beyond service quality and communication.

One other limitation of this research is its use of self-reported information, as it could be prone to response biases like recall bias or social desirability. Patients could have overreported their satisfaction due to politeness or perceived social norms rather than their real experience. Future research can circumvent this limitation by using objective measures of patient satisfaction, e.g., healthcare performance measures, patient follow-up data, or third-party assessments of quality of service. In addition, while this research confirms the mediating effect of trust in doctor and the moderating effect of effective communication, it does not consider potential boundary conditions or situational variables that may influence

these effects. For example, future research could explore whether demographic factors like age, education level, or health literacy act as mediators between functional quality and trust and satisfaction. In addition, the increased popularity of digital healthcare services like telemedicine and AI-based diagnostics introduces new dimensions of service quality and trust not explored in this research. Future studies can investigate how digital communication technologies affect the development of trust and patient satisfaction in virtual health settings. Lastly, the research is predominantly based on patient attitudes, but future studies could incorporate the opinions of medical professionals to provide a more balanced perspective toward determinants of service quality and patient trust. Examining doctors' and medical professionals' perceptions and provision of service quality enhancement might clarify additional challenges and possibilities for enhancing patient-centered care further. Future research can mitigate such constraints and widen the research horizon to enhance the theoretical framework and develop more effective strategies for improving healthcare service quality and patient satisfaction.

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REFERENCES

1. Akthar N, Nayak S, Pai P Y. Determinants of patient satisfaction in Asia: Evidence from systematic review of literature. *Clin Epidemiol Glob Health*. 2023; 23: 101393. doi: <https://doi.org/10.1016/j.cegh.2023.101393>.
2. Ali J, Jusoh A, Idris N, Nor KM. Healthcare service quality and patient satisfaction: a conceptual framework. *International Journal of Quality & Reliability Management*. 2024; 41(2): 608-27. doi: <https://doi.org/10.1108/IJQRM-04-2022-0136>.
3. Alibrandi A, Gitto L, Limosani M, Mustica PF. Patient satisfaction and quality of hospital care. *Eval Program Plann*. 2023; 97: 102251. doi: <https://doi.org/10.1016/j.evalprogplan.2023.102251>.
4. Custers PA, van der Sande ME, Grotenhuis BA, et al. Long-term Quality of Life and Functional Outcome of Patients With Rectal Cancer Following a Watch-and-Wait Approach. *JAMA Surg*. 2023; 158(5): e230146. doi: <https://doi.org/10.1001/jamasurg.2023.0146>.
5. Defar S, Abraham Y, Reta Y, et al. Health related quality of life among people with mental illness: The role of socio-clinical characteristics and level of functional disability. *Front Public Health*. 2023; 11: 1134032. doi: <https://doi.org/10.3389/fpubh.2023.1134032>.
6. Del Ponte A, Gerber AS, Patashnik EM. Polarization, the Pandemic, and Public Trust in Health System Actors. *J Health Polit Policy Law*. 2024; 49(3): 375-401. doi: <https://doi.org/10.1215/03616878-11075562>.
7. Fitriah Z. The Influence of Effective Communication, Patient Experience on Patient Loyalty Mediated By Trust. *Jurnal Multidisiplin Indonesia*. 2023; 2(9): 2674-85. doi: <https://doi.org/10.58344/jmi.v2i9.532>.
8. Mei Y, Xu X, Li X. Encouraging Patient Engagement Behaviors from the Perspective of Functional Quality. *Int J Environ Res Public Health*. 2020; 17(22): 8613. doi: <https://doi.org/10.3390/ijerph17228613>.
9. Gu L, Wang X, Tian D. The association of family doctor contract service and patient trust in doctor: evidence from twenty-five village clinics of three counties in rural China. *BMC Prim Care*. 2024; 25(1): 58. doi: <https://doi.org/10.1186/s12875-024-02298-4>.
10. Elkefi S, Asan O. The Impact of Patient-Centered Care on Cancer Patients' QOC, Self-Efficacy, and Trust Towards Doctors: Analysis of a National Survey. *J Patient Exp*. 2023; 10: 23743735231151533. doi: <https://doi.org/10.1177/23743735231151533>.
11. Grigoroglou C, Walshe K, Kontopantelis E, et al. Use of locum doctors in NHS trusts in England: analysis of routinely collected workforce data 2019-2021. *BMJ Open*. 2023; 13(6): e065803. doi: <https://doi.org/10.1136/bmjopen-2022-065803>.
12. Kerstan S, Bienefeld N, Grote G. Choosing human over AI doctors? How comparative trust associations and knowledge relate to risk and benefit perceptions of AI in healthcare. *Risk Anal*. 2024; 44(4): 939-57. doi: <https://doi.org/10.1111/risa.14216>.
13. Kong L, Chen Y, Wang L, Wang K, Liu C, Gan Y. Effect of Perspective-Taking on Trust Between Doctors and Patients: A Randomized Controlled Trial. *J Clin Psychol Med Settings*. 2023; 30(4): 708-15. doi: <https://doi.org/10.1007/s10880-022-09935-z>.
14. Krishnamoorthy S, Dua A, Gupta S. Role of emerging technologies in future IoT-driven Healthcare 4.0 technologies: a survey, current challenges and future directions. *J Ambient Intell Human Comput*. 2023; 14(1): 361-407. doi: <https://doi.org/10.1007/s12652-021-03302-w>.
15. Moldovan F, Moldovan L. Assessment of Patient Matters in Healthcare Facilities. *Healthcare (Basel)*. 2024; 12(3): 325. doi: <https://doi.org/10.3390/healthcare12030325>.
16. Ghasemi M, Arash SS, Violet AU, and Hassanpoor E. Can Cost and Quality Management-Oriented Innovation Enhance Patient Satisfaction in Medical Tourist Destination? *Journal of Quality Assurance in Hospitality & Tourism*. 2023; 24(6): 806-35. doi: <https://doi.org/10.1080/1528008X.2022.2089438>.
17. Hwang ST, Ardebol J, Ghayyad K, et al. Quantifying Threshold Scores for Patient Satisfaction After Massive Rotator Cuff Repair for the Interpretation of Mid-Term Patient-Reported Outcomes. *Arthroscopy*. 2024; 40(2): 204-13. doi: <https://doi.org/10.1016/j.arthro.2023.06.031>.
18. Versluijs Y, Lemmers M, Brown LE, Gonzalez AI, Kortlever JTP, Ring D. The Correlation of Communication Effectiveness and Patient Satisfaction. *J Patient Exp*. 2021; 8: 2374373521998839. doi: <https://doi.org/10.1177/2374373521998839>.

19. Jusufbašić A, Stević Ž. Measuring Logistics Service Quality Using the SERVQUAL Model. *Journal of Intelligent Management Decision*. 2023; 2(1): 1-10. doi: <https://doi.org/10.56578/jimd020101>.
20. Blau PM. Justice in Social Exchange. *Sociol Inq*. 1964; 34(2): 193-206. doi: <https://doi.org/10.1111/j.1475-682X.1964.tb00583.x>.
21. Najim Ali H, Al-sharhanee Kareem Ali M, Al-Joboury Istabraq M, et al. An IoT Healthcare System With Deep Learning Functionality for Patient Monitoring. *Int J Commun Syst*. 2025; 38(4): e6020. doi: <https://doi.org/10.1002/dac.6020>.
22. Verulava T. Barriers to effective communication between family physicians and patients in Georgia. *Fam Med Prim Care Rev*. 2023; 25(1): 80-85. doi: <https://doi.org/10.5114/fmPCR.2023.125498>.
23. Hofstetter S, Zilezinski M, Wolf A, et al. Dfree ultrasonic sensor in supporting quality of life and patient satisfaction with bladder dysfunction. *Int J Urol Nurs*. 2023; 17(1): 62-69. doi: <https://doi.org/10.1111/ijun.12334>.
24. Rambey AI, Ariani N, Kusdhany LS. Cross-Cultural Adaptation of The Indonesian Version Functional Assessment of Denture Instrument as a Measuring Tool for Complete Denture Functional Quality. *Eur J Dent*. 2025; 19(1): 48-54. doi: <https://doi.org/10.1055/s-0044-1786843>.
25. Sharma D, Singh Aujla G, Bajaj R. RETRACTED: Evolution from ancient medication to human-centered Healthcare 4.0: A review on health care recommender systems. *Int J Commun Syst*. 2023; 36(12): e4058. doi: <https://doi.org/10.1002/dac.4058>.
26. Poulipoulou DV, Macdermid JC, Saunders E, et al. Rehabilitation Interventions for Physical Capacity and Quality of Life in Adults With Post-COVID-19 Condition: A Systematic Review and Meta-Analysis. *JAMA Netw Open*. 2023; 6(9): e2333838. doi: <https://doi.org/10.1001/jamanetworkopen.2023.33838>.
27. Rezaie-Chamani S, Lamyian M, Ahmadi F, Montazeri A. I trust doctors and midwives: exploring breast cancer literacy among women referring to the health centers in Iran. *BMC Cancer*. 2024; 24(1): 1201. doi: <https://doi.org/10.1186/s12885-024-12988-y>.
28. Eliza Y, Apriyeni D, Sutiye S, Trismiyanti D. What Factors Affecting Patient Satisfaction? *Adpebi International Journal of Multidisciplinary Sciences*. 2024; 3(1): 64-70. doi: <https://doi.org/10.54099/aijms.v3i1.836>.
29. Wu J, Xia Q, Miao Y, Yu C, Tarimo CS, Yang Y. Self-perception and COVID-19 vaccination self-efficacy among Chinese adults: A moderated mediation model of mental health and trust. *J Affect Disord*. 2023; 333: 313-20. doi: <https://doi.org/10.1016/j.jad.2023.04.047>.
30. Wang Y, Liu C, Wang P. Patient satisfaction impact indicators from a psychosocial perspective. *Front Public Health*. 2023; 11: 1103819. doi: <https://doi.org/10.3389/fpubh.2023.1103819>.
31. Li C, Khan MM, Chen Z. Public trust of physicians in China improved since the COVID-19 pandemic Began. *Soc Sci Med*. 2023; 320: 115704. doi: <https://doi.org/10.1016/j.socscimed.2023.115704>.
32. Benkhaddra I, Kumar A, Setitra MA, Hang L. Design and Development of Consensus Activation Function Enabled Neural Network-Based Smart Healthcare Using BIoT. *Wirel Pers Commun*. 2023; 130(3): 1549-74. doi: <https://doi.org/10.1007/s11277-023-10344-0>.
33. Prasse T, Yap N, Sivakanthan S, et al. Remote patient monitoring following full endoscopic spine surgery: feasibility and patient satisfaction. *J Neurosurg Spine*. 2023; 39(1): 122-31. doi: <https://doi.org/10.3171/2023.2.spine23136>.
34. Lu W, Hou H, Ma R, et al. Influencing factors of patient satisfaction in teleconsultation: A cross-sectional study. *Technol Forecast Soc Change*. 2021; 168: 120775. doi: <https://doi.org/10.1016/j.techfore.2021.120775>.
35. Tang WM, Soong C-Y, Lim WC. Patient Satisfaction with Nursing Care: A Descriptive Study Using Interaction Model of Client Health Behavior. *International Journal of Nursing Science*. 2013; 3(2): 51-56. doi: <https://doi.org/10.5923/j.nursing.20130302.04>.
36. Hair JF, Hult GTM, Ringle CM, Sarstedt M, Danks NP, Ray S. Evaluation of Reflective Measurement Models. In: Hair Jr JF, Hult GTM, Ringle CM, Sarstedt M, Danks NP, Ray S, Eds. *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook*. Springer International Publishing; 2021:75-90. doi: https://doi.org/10.1007/978-3-030-80519-7_4.
37. Hair J, Alamer A. Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*. 2022; 1(3): 100027. doi: <https://doi.org/10.1016/j.rmal.2022.100027>.
38. Henseler J, Ringle CM, Sarstedt M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J Acad Mark Sci*. 2015; 43(1): 115-35. doi: <https://doi.org/10.1007/s11747-014-0403-8>.
39. Radević I, Vlado D, Anđelko L, and Colnar S. Quality of Healthcare Services in Focus: The Role of Knowledge Transfer, Hierarchical Organizational Structure and Trust. *Knowledge Management Research & Practice*. 2023; 21(3): 525-36. doi: <https://doi.org/10.1080/14778238.2021.1932623>.
40. Javaid M, Haleem A, Singh RP. ChatGPT for healthcare services: An emerging stage for an innovative perspective. *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*. 2023; 3(1): 100105. doi: <https://doi.org/10.1016/j.tbench.2023.100105>.
41. Friedel AL, Siegel S, Kirstein CF, et al. Measuring Patient Experience and Patient Satisfaction-How Are We Doing It and Why Does It Matter? A Comparison of European and U.S. American Approaches. *Healthcare (Basel)*. 2023; 11(6): 797. doi: <https://doi.org/10.3390/healthcare11060797>.