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PHYSICIAN-PATIENT INTERACTION QUALITY AS A PREDICTOR OF PATIENT SATISFACTION: EXAMINING THE UNIQUE CONTRIBUTIONS OF COMMUNICATION AND EMPATHY IN PAKISTANI HEALTHCARE

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Abstract

To examine the associations among patients' perceptions of physician communication, physician empathy, and patient satisfaction in Pakistani hospital settings. A cross-sectional correlational study was conducted in public and private hospitals in Islamabad and Rawalpindi, Pakistan, between December 2024 and February 2025. Using purposive convenience sampling, 280 adult patients from psychiatry (n = 92), dermatology (n = 102), and cardiology (n = 86) completed the Communication Assessment Tool (CAT), the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE), and a 10-item patient satisfaction scale. Pearson correlations assessed bivariate associations. Multiple linear regression tested whether communication and empathy jointly predicted patient satisfaction. One-way ANOVA examined differences in satisfaction across specialties, and independent samples t-tests compared satisfaction by gender and hospital type. Physician communication was strongly correlated with physician empathy ($r = .91$, $p < .001$) and patient satisfaction ($r = .90$, $p < .001$). Physician empathy was also strongly correlated with patient satisfaction ($r = .92$, $p < .001$). In regression analysis, the model was significant, $F(2, 277) = 825.47$, $p < .001$, explaining 85.6% of the variance in patient satisfaction ($R^2 = .856$; adj. $R^2 = .855$). Both physician communication ($B = 0.34$, $SE = 0.04$, $\beta = .39$, $p < .001$) and physician empathy ($B = 1.06$, $SE = 0.10$, $\beta = .56$, $p < .001$) independently predicted higher patient satisfaction. No significant differences in satisfaction were found across specialties ($F(2, 277) = 1.24$, $p = .29$) or by gender ($t(278) = 0.87$, $p = .38$). Patients' perceptions of physician communication and empathy are strongly associated with patient satisfaction, and both contribute uniquely to satisfaction ratings. Interventions that strengthen patient-centred communication and empathic engagement may improve patient experience in time-constrained healthcare settings.

Keywords: Physician's Communication, Physician's Empathy, Patient's Satisfaction, Healthcare, Pakistan.

1. Introduction

Proper physician-patient communication has been recognised as one of the essential aspects of quality of care and is always associated with the way the patients assess the provided care, interact with the treatment process, and their future health-related behaviours (Doyle et al., 2013). Interpersonal experiences, including the explanation being clear, being treated with respect, and attentive, in some cases, can weight even more

heavily than the technicality of care in overall patient judgments of service quality (Jalil et al., 2017). With the growing focus on patient-centred care and responsibility towards patient-reported outcomes, the role of relational behaviours towards patient satisfaction is a feasible quality improvement and service delivery concern (Aman-Ullah et al., 2022).

Patient clinical communication goes beyond passing on information. Patient-centred communication involves evoking concerns, active listening, responding to emotional signals, engaging patients in decision-making and establishing clarity. With such behaviours in place, the patients will experience a more positive encounter with the organisation as supportive and competent and this, in turn, can help to achieve a high level of satisfaction and increase the level of confidence in the care. On the other hand, lapses in communication like lack of a chance to ask questions, lack of explanations, or non-communicative actions can decrease satisfaction despite the technical adequacy of clinical care. This renders communication especially topical in an environment where systemic pressures limit the amount of time and focus the physicians can pay to each interaction (Irving et al., 2017).

Physician empathy is a closely related relational construct, which is generally defined as the ability to comprehend the viewpoint of the patient, convey the comprehension, and act in a convincing way. The positive patient-reported outcomes, such as satisfaction and perceived quality of care, often are linked to empathy (Derksen et al., 2013). Notably, empathy is not merely a personal attitude, but also a collection of behaviours which can be enhanced; intervention research indicates that empathy-related skills can be enhanced by specific training with quantifiable effects on patient-reported outcomes (Riess et al., 2012). Since, due to the often-perceived empathy in the ways patients are spoken to through listening, validation, and customised explanations, communication, and empathy are anticipated to be connected and may be differentiated contributors to the ways patients rate healthcare experiences.

In Pakistan, these concerns are perhaps particularly relevant since healthcare provision is often provided under severe structural limitations. In the international comparisons, the length of consultation has been reported to be extremely short in Pakistan, which raises concern that the lack of time can limit the possibility of patient-centred communication and empathic interactions (Irving et al., 2017). There are also Pakistani indications of the possible discrepancies between the perceived effectiveness of communication and the actual perception of the patients by the physicians; there is also a possibility of lack of awareness on the part of the provider and patient need to assess the quality of interaction in a patient-centred way (Hafeez et al., 2004). The patient satisfaction studies of the tertiary care facilities in Pakistan, such as hospitals in Rawalpindi, also indicate that the satisfaction levels among patients in the different domains of services offered vary and indicate that interpersonal factors of care have a significant influence on patient satisfaction (Atif et al., 2016; Sardar et al., 2020). Additionally, pressures related to the system, large patient flow, the lack of resources, and irregular formal training in the area of communication can also deteriorate the quality of the interaction between physicians and patients (Mushtaq et al., 2024).

Although there is a vast body of international literature that establishes the relationship between communication and empathy with patient experience, empirical studies of how communication and empathy can be considered as predictors of patient satisfaction in hospitals are relatively few, especially those that dedicate empirical research to the simultaneous effect of communication and empathy on patient satisfaction. The relevance of this gap is based on the fact that the relative roles of communication and empathy might vary according to the healthcare context, particularly when the time of consultation is limited, and patient expectations, health literacy, and institutional circumstances can influence the perception of relational behaviours. Moreover, specialty context can have an effect on the salience of relation issues: psychiatry frequently engages emotionally coloured disclosure and alliance-making; cardiology frequently engages risk communication and long-term adherence; and dermatology frequently engages visible symptoms with psychosocial implications. Every situation can influence the measure of communication, empathy, and satisfaction used by patients.

In this regard, the current research was developed to investigate relationships involving patient perception of physician communication, physician empathy and patient satisfaction in patients who use psychiatry, cardiology and dermatology care services in both government and private hospitals in Islamabad

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and Rawalpindi. The study will offer context-specific proof to support service-improvement and clinician-training programmes in Pakistani healthcare facilities by estimating the independent and combined effects of communication and empathy on satisfaction.

2. Literature Review

2.1 Theoretical Framework

The current research is based on the patient-centred communication theory developed by Street and his colleagues that suggests a proximal mechanism of clinician-patient communication that results in health outcomes which involves shared understanding, trust, therapeutic alliance, emotional support, and patient participation (Street et al., 2009). Patient satisfaction is one of the nearest outcomes in this causation chain since it is the reflection of how the patients evaluate the encounter itself - whether they felt respect, heard, informed and supported. According to this theoretical framework informational exchange (communication) and emotional atonement (empathy) all play independent roles in the assessment of quality of care of patients.

2.2 Physician Communication and Patient Satisfaction

There is a significant amount of international literature that has determined strong links between the quality of physician-patient communication and patient satisfaction. In a systematic review of 55 articles, Doyle et al. (2013) identified positive and consistent relationships between patient experience (including communication) and clinical effectiveness and safety outcomes. The acts of communication that persistently forecast satisfaction are the clarification of the messages, active listening, giving sufficient chance to ask questions, and participation of the patients in the decision-making process (Makoul et al., 2007).

The Pakistani healthcare setting involved Jalil et al. (2017) investigating the satisfaction levels of diabetes patients with the doctor-patient interaction to determine the quality of communication to be a key factor in the overall satisfaction. On the same note, Hussain et al. (2019) also found that interpersonal care variables such as communication were significant predictors of outpatient department satisfaction in hospitals in the public sector. Nevertheless, Hafeez et al. (2004) have found that there are huge discrepancies between self-perceived communication effectiveness and actual perception of patients, indicating that provider-based awareness of communication quality might be low.

2.3 Physician Empathy and Patient Satisfaction

Clinical empathy has been formulated as the capacity to share the patient viewpoint, exchange that perception, and act in a therapeutic manner (Derksen et al., 2013). A systematic review of the case by Derksen et al. (2013) established that empathy in general practise is linked to patient satisfaction, enablement, and less anxiety. In a meta-analysis of 13 randomised controlled trials, Howick et al. (2018) discovered that empathic and positive communication motivated patient-reported outcomes, such as pain, anxiety, and satisfaction.

Kane et al. (2007) have developed the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE), which has found extensive applications in measuring the perceptions of patients of physician empathy. Research involving this measure has always shown that it is strongly related to satisfaction in a wide range of clinical settings (Hojat et al., 2011). The specific study of empathy as an independent predictor of satisfaction has been under-researched in Pakistani settings, although qualitative data indicates that emotional attentiveness and a sense of understanding between patients and their doctors were important (Arshad et al., 2026; Jalil et al., 2017).

2.4 Communication-Empathy Interrelationship

Communication and empathy are rather different in their conceptual definition, but in clinical practise, they are tightly interconnected. Communication behaviours including tone of voice, validation, responsiveness, and emotional responsiveness can be interpreted by patients to mean that the physician empathised with them (Riess et al., 2012). But studies have indicated that the two constructs can have a role to play in patient satisfaction alone. Hojat et al. (2011) established unique variance in satisfaction with communication quality and attributed this difference to empathy, which implies that patients have differentiated between clear communication and emotional understanding of the information.

Intervention studies can also testify to the unique actions of communication and empathy. Riess et al. (2012) established that empathy training of resident physicians led to a statistically significant improvement in patient-reported outcomes, whereas Howick et al. (2018) concluded that empathic and positive

communication behaviours were both associated with an improvement in patient experience. The findings indicate that interventions based on the improvement of both communication and empathic engagement can be the most effective to enhance patient satisfaction.

2.5 Relational Care Differences in Specialty

Salience of communication and empathy can be different in various clinical specialties because of the difference in patients, subjects of the consultation and objectives of the treatment. In psychiatry, therapeutic alliance has been regarded as a fundamental treatment efficacy mechanism, and empathic interplay can be especially important when it comes to patient involvement and contentment (Jalil et al., 2017). Consultations of cardiology are often associated with multifaceted risk communication and adherence to the plan over time, and it is quite possible that clarity of explanation is particularly significant (Doyle et al., 2013). Patients in dermatology frequently come with several visible symptoms that have psychosocial implications, which may increase the significance of empathic validation (Mushtaq et al., 2024).

Although there are these theoretical differences, few studies have conducted a systematic comparison of the level of satisfaction across the specialties with standardised measures. This gap is filled by the current research by incorporating patients under psychiatric, cardiology, and dermatology services.

2.6 Demographic Factor and Patient Satisfaction

The previous studies have indicated the multiple demographic correlates of patient satisfaction, although the results have been inconsistent. Other studies indicate a greater level of satisfaction among the older patients and females (Hussain et al., 2019) and some studies show no significant difference in gender (Atif et al., 2016). It has also tested marital status and education level as the possible moderators of the relationship between relational care and satisfaction (Jalil et al., 2017). Sardar et al. (2020) also discovered that native residency status was related to increased satisfaction, which could be related to the familiarity with culture and the ease of communication in Pakistani settings. The current research paper has a detailed demographic analysis to test these relationships.

2.7 the Pakistani Healthcare Indicators

Pakistan is a country with serious structural problems in delivering healthcare, which can affect the relationship between physicians and patients. In a systematic review cross-examining 67 countries, Irving et al. (2017) found that Pakistan is one of the countries with the shortest primary care consultation times in the world, with the mean of less than 3 minutes. This time pressure makes it extremely limited with respect to patient-centred communication and empathic interaction. Also, irregular formal teaching of communication skills in Pakistani medical training might leave the physicians unprepared to take care of the relational part (Mushtaq et al., 2024).

The quality of interpersonal care has been emphasised in the recent Pakistani studies. Atif et al. (2016) evaluated the patient satisfaction with the pharmacy services of Rawalpindi and discovered that personal aspects had a strong impact on the total satisfaction. Sardar et al. (2020) investigated the connexion between satisfaction and a military hospital and found the quality of communication to be a main determinant. Nevertheless, such researches have generally focused on communication as a solo practise and not as a collaborative practise in conjunction with empathy.

2.8 Research Gaps and Hypotheses

The current literature has a number of gaps. First, the study has not yet been done by any Pakistani research that has simultaneous investigated the predictors of satisfaction in both communication and empathy upon the validated patient-report measures. Second, the comparative work of these constructs within time-limited healthcare environments has not been studied much. Third, the possible variation between specialties of clinical satisfaction has not been given the necessary attention. Fourth, there is no overall demographic study of satisfaction correlates in Pakistani hospitals.

In order to fill these gaps, the following hypotheses should be tested in the present study:

H1: The quality of communication between physicians and patients in Pakistani healthcare has a positive relation with patient satisfaction.

H 2: In Pakistan, the empathy of physicians is positively correlated with patient satisfaction.

H3: The quality of physician communication and physician empathy are joint and significant predictors of

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patient satisfaction, and both justify significant variance in patient satisfaction when added to a multiple regression model simultaneously.

H4: There is a significant difference in patient satisfaction in clinical specialties (psychiatry, cardiology, dermatology).

H5: The patient satisfaction is significantly different when there is a difference in demographic factors (gender, marital status, education level, residency status, number of visits).

Through the identification of the relational factors that relate to patient satisfaction within the time limited healthcare system, the study will offer practical evidence to aid the process of medical education, continuing professional education, and quality improvement of the hospitals in Pakistan.

3. Methodology

3.1 Research Design

This was a cross-sectional correlational study. The research involved the selection of psychiatry, cardiology and dermatology units of hospital in Islamabad and Rawalpindi, Pakistan between December 2018 and February 2019.

3.2 Sample

Purposive convenience was used in recruiting participants. To include the participants, it was necessary that they (a) received care in one of the participating departments, (b) could understand English, (c) had at least an intermediate level of education, and (d) informed consent. Patients were not included in case they were not able to answer the questionnaire because of acute clinical instability, gross cognitive impairment, or consent refusal/withdrawal.

Two hundred and eighty patients were able to fill the questionnaire with 92 psychiatric patients, 102 dermatology patients, and 86 cardiology patients. This is larger than the minimum required to conduct multiple regression analysis with two predictors (minimum N = 84 to achieve power =.80, a =.05, medium effect size) and sufficient power to conduct subgroup analyses.

3.3 Measures

The perceptions of patients to communication and empathy of physicians and their satisfaction with care were measured through three measures.

3.3.1 Communication Assessment Tool (CAT). Perceptions of the communication skills of the physicians were determined by using the Communication Assessment Tool (CAT; 15 items), which is a tool created by Makoul et al. (2007) to evaluate how patients perceived physicians with regard to their interpersonal and communication skills during a clinical visit. The rating of items is done on a 5-point scale (1 = poor to 5 = excellent) and then summed to provide a total score of 15 to 75 with higher scores denoting a better perception of communication. The CAT has been shown to have high internal consistency in the original development study (Cronbach a = .96) and in the current research (a =.99).

3.3.2 Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE). The level of perceptions of empathic interaction by physicians on the part of the patients was assessed by a scale that had been created by Kane et al., (2007) named the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE; 5 items). It was in the form of a 7-point Likert (1 = strongly disagree to 7 = strongly agree), which resulted in a total score of 5-35. This scale had a great reliability in the current research (a = .96).

3.3.4 Scale of Patient overall satisfaction with physicians. Patient satisfaction was measured in the Scale of Patient Overall Satisfaction with Physicians (10 items), created by Hojat et al. (2011) as a short tool of assessing overall patient satisfaction with their physician, based on questions used in CAHPS Adult Primary Care Questionnaire. The items are rated based on a 7-point agreement scale (1 = strongly disagree to 7 = strongly agree) and the overall scores are added together to give total scores of 10 to 70, where high scores are more indicative of higher satisfaction. Excellent reliability of the scale was demonstrated in the current study (a =.98).

3.4 Procedure

Prior to the data collection, the author received administrative approval by hospital authorities. In the concerned departments, patients meeting the criteria were contacted and informed about the purpose of the study, anonymity, and voluntariness as well as the right not to participate without interference with their

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treatment. Informed consent was taken verbally and written. The questionnaire packet took the participants around 15-20 minutes, questions were explained without affecting answers, and formatted forms were taken right after.

3.5 Ethical Considerations

The research was carried out in compliance with other applicable ethical principles in research involving human subjects. The ethics review board of the National Institute of Psychology, Quaid-I- Azam University, Islamabad allowed the acquisition of the ethics approval. The study was conducted on the basis of confidentiality and anonymity; no specific data was involved in data analyses and data was stored securely with the research team having exclusive access to it.

3.6 Data screening and Analysis Plan

Pre-screening of the data involved completeness and distributional assumptions before the testing of the hypotheses. Means, standard deviations, skewness, kurtosis, descriptive statistics were computed and internal consistency reliabilities (Cronbach a) were computed on all the measures used in the study. Bivariate correlations were analysed using Pearson product-moment correlations between physician communication, physician empathy and patient satisfaction. Tolerance and variance inflation factor (VIF) statistics were used to cheque whether there was multicollinearity before the regression process. This was followed by multiple linear regression in the determination of whether the joint predictors of patient satisfaction were physician communication and physician empathy. The difference in the levels of satisfaction between the specialties was compared with one-way ANOVA, and independent samples t-tests were conducted to compare the levels of satisfaction by gender, marital status, status of residence, and hospital type. IBM SPSS Statistics 27 was used to perform the analyses.

4. Results

4.1 Demographic Characteristics of the Sample

The frequencies and percentages of the sample's demographic profile were computed.

Table 1

Frequencies and Percentages of Demographic Variables (N = 280)

Variable	n (%)	Variable	n (%)
Gender		**Residency**	
Male	93 (33.2%)	Native	252 (90.0%)
Female	187 (66.8%)	Non-native	28 (10.0%)
Education		**Marital status**	
Intermediate	196 (70.0%)	Unmarried	100 (35.7%)
Graduate	55 (19.7%)	Married	173 (61.8%)
Postgraduate	29 (10.3%)	Divorced	7 (2.5%)
Problem or disease		**Number of visits**	
Psychiatry	92 (32.9%)	1 visit	148 (52.9%)
Dermatology	102 (36.4%)	2 visits	88 (31.4%)
Cardiology	86 (30.7%)	3 visits	44 (15.7%)
Hospital Type			
Public	168 (60.0%)		
Private	112 (40.0%)		

Note. n = frequency, % = percentage

As shown in Table 1, in the study sample (N = 280), females (n = 187, 66.8%) were dominant compared with males (n = 93, 33.2%). Most respondents were native residents (n = 252, 90.0%), whereas a smaller proportion were non-native (n = 28, 10.0%). Regarding education, the majority had intermediate-level education (n = 196, 70.0%), followed by graduate (n = 55, 19.7%) and postgraduate education (n = 29, 10.3%). Most participants were married (n = 173, 61.8%), with fewer unmarried (n = 100, 35.7%) and divorced (n = 7, 2.5%). Regarding presenting problems, participants most frequently reported dermatology concerns (n = 102, 36.4%), followed by psychiatry (n = 92, 32.9%) and cardiology (n = 86, 30.7%). More than half of the sample reported attending one visit (n = 148, 52.9%), while others reported two visits (n = 88, 31.4%) or three

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visits (n = 44, 15.7%). The majority attended public hospitals (n = 168, 60.0%), with 40.0% (n = 112) attending private facilities.

4.2 Descriptive Statistics and Psychometric Properties

Descriptive and psychometric analyses were conducted to assess the normality of study variables and confirm the internal consistency of the measures prior to hypothesis testing.

Table 2

Descriptive Statistics and Psychometric Properties of Study Variables (N = 280)

Variable	k	Possible Range	Observed Range	M	SD	Skewness	Kurtosis	α
Physician Communication	15	15–75	15–75	48.42	17.76	-0.31	-1.26	.99
Physician Empathy	5	5–35	5–35	23.81	8.18	-0.70	-0.45	.96
Patient Satisfaction	10	10–70	10–70	50.73	15.48	-0.84	-0.26	.98

Note. k = Number of Items, M = Mean, SD = Standard Deviation, α = Cronbach's Alpha Reliability Coefficient

Descriptive statistics indicated that the study variables showed no severe departures from normality, with skewness and kurtosis values falling within commonly accepted ranges (i.e., absolute values < 2). Internal consistency reliabilities were excellent for all measures: Physician Communication (α = .99), Physician Empathy (α = .96), and Patient Satisfaction (α = .98).

4.3 Bivariate Correlations

A Pearson product–moment correlation was conducted to examine associations among physician communication, physician empathy, and patient satisfaction.

Table 3

Correlation Matrix for All Study Variables (N = 280)

Variables	1	2	3
1. Physician Communication	—	.91**	.90**
2. Physician Empathy		—	.92**
3. Patient Satisfaction			—

Note. **p < .001 (two-tailed)

As shown in Table 3, physician communication was strongly and positively associated with physician empathy (r = .91, p < .001) and patient satisfaction (r = .90, p < .001). Physician empathy was also strongly and positively associated with patient satisfaction (r = .92, p < .001). Overall, higher perceived physician communication and empathy were associated with greater patient satisfaction.

4.4 Multiple Regression Analysis

A multiple linear regression was conducted to test whether physician communication and physician empathy significantly predicted patient satisfaction. Prior to analysis, multicollinearity diagnostics were examined. Tolerance values (.17 for communication, .17 for empathy) and variance inflation factor (VIF) values (5.88 for both predictors) indicated acceptable levels of multicollinearity, below the conservative threshold of 10.

Table 4

Multiple Regression Predicting Patient Satisfaction (N = 280)

Predictor	B	SE B	β	t	p	95% CI for B
Constant	9.15	1.15		7.96	< .001	[6.89, 11.41]
Physician Communication	0.34	0.04	0.39	7.24	< .001	[0.26, 0.42]
Physician Empathy	1.06	0.10	0.56	10.60	< .001	[0.86, 1.26]

Note. B = unstandardized regression coefficient; SE B = standard error of B; β = standardized regression coefficient; CI = confidence interval. Model: $R^2 = .856$, Adj. $R^2 = .855$, $F(2, 277) = 825.47$, $p < .001$.

The overall model was significant, $F(2, 277) = 825.47$, $p < .001$, and explained 85.6% of the variance in patient satisfaction, $R^2 = .856$ (adjusted $R^2 = .855$). Both physician communication, B = 0.34, SE = 0.04, β = .39, $t(277) = 7.24$, $p < .001$, and physician empathy, B = 1.06, SE = 0.10, β = .56, $t(277) = 10.60$, $p < .001$, were significant positive predictors of patient satisfaction. The standardized coefficients indicate that physician empathy (β = .56) was a slightly stronger predictor of satisfaction than physician communication (β

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= .39), though both contributed substantially to the model.

4.5 Comparison of Satisfaction across Clinical Specialties

A one-way between-groups analysis of variance (ANOVA) was conducted to examine whether patient satisfaction differed across the three clinical specialties.

Table 5

Descriptive Statistics for Patient Satisfaction by Specialty

Specialty	n	M	SD	95% CI for Mean
Psychiatry	92	49.89	15.62	[46.66, 53.12]
Dermatology	102	51.45	15.38	[48.43, 54.47]
Cardiology	86	50.72	15.54	[47.39, 54.05]
Total	280	50.73	15.48	[48.91, 52.55]

Table 6

One-Way ANOVA Summary Table: Patient Satisfaction by Specialty

Source	SS	df	MS	F	p	η^2
Between Groups	593.24	2	296.62	1.24	.29	.009
Within Groups	66384.76	277	239.66			
Total	66978.00	279				

Note. SS = sum of squares; df = degrees of freedom; MS = mean square; η^2 = eta squared (effect size).

The ANOVA results indicated no statistically significant difference in patient satisfaction across the three specialties, $F(2, 277) = 1.24$, $p = .29$. The effect size was very small ($\eta^2 = .009$), indicating that specialty membership accounted for less than 1% of the variance in satisfaction scores.

4.6 Comparison of Satisfaction by Demographic Characteristics

Independent samples t-tests were conducted to examine differences in patient satisfaction by gender, marital status (married vs. unmarried), residency status, and hospital type.

Table 7

Comparison of Patient Satisfaction by Demographic Characteristics

Variable	Group	n	M	SD	t	df	p	Cohen's d
Gender	Male	93	51.48	15.61	0.87	278	.38	0.11
	Female	187	50.35	15.43				
Marital Status	Unmarried	100	51.02	15.55	0.23	271	.82	0.03
	Married	173	50.65	15.44				
Residency	Native	252	50.92	15.42	1.42	278	.16	0.28
	Non-native	28	46.96	15.89				
Hospital Type	Public	168	50.21	15.51	-0.68	278	.50	0.08
	Private	112	51.50	15.46				

As shown in Table 7, no statistically significant differences in patient satisfaction were found for any demographic variable. Male patients ($M = 51.48$, $SD = 15.61$) reported slightly higher satisfaction than female patients ($M = 50.35$, $SD = 15.43$), but this difference was not significant, $t(278) = 0.87$, $p = .38$. Unmarried patients ($M = 51.02$, $SD = 15.55$) and married patients ($M = 50.65$, $SD = 15.44$) reported similar satisfaction levels, $t(271) = 0.23$, $p = .82$. Native residents ($M = 50.92$, $SD = 15.42$) reported higher satisfaction than non-native residents ($M = 46.96$, $SD = 15.89$), though this difference did not reach statistical significance, $t(278) = 1.42$, $p = .16$. Patients in private hospitals ($M = 51.50$, $SD = 15.46$) reported slightly higher satisfaction than those in public hospitals ($M = 50.21$, $SD = 15.51$), but this difference was not significant, $t(278) = -0.68$, $p = .50$.

4.7 Comparison of Satisfaction by Number of Visits

A one-way ANOVA was conducted to examine whether patient satisfaction differed by number of visits to the healthcare facility.

Table 8

Descriptive Statistics for Patient Satisfaction by Number of Visits

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Number of Visits	n	M	SD	95% CI for Mean
1 visit	148	50.11	15.55	[47.61, 52.61]
2 visits	88	51.59	15.41	[48.33, 54.85]
3 visits	44	50.98	15.54	[46.26, 55.70]
Total	280	50.73	15.48	[48.91, 52.55]

Table 9

One-Way ANOVA Summary Table: Patient Satisfaction by Number of Visits

Source	SS	df	MS	F	p	η²
Between Groups	127.42	2	63.71	0.26	.77	.002
Within Groups	66850.58	277	241.34			
Total	66978.00	279				

The ANOVA results indicated no statistically significant difference in patient satisfaction by number of visits, $F(2, 277) = 0.26$, $p = .77$. The effect size was negligible ($\eta^2 = .002$).

4.8 Correlation Matrix with Demographic Variables

Point-biserial correlations were computed to examine associations between study variables and demographic characteristics.

Table 10

Point-Biserial Correlations between Study Variables and Demographic Characteristics

Variable	Gender	Marital Status	Residency	Hospital Type	Number of Visits
Physician Communication	-.05	.02	.09	.04	.03
Physician Empathy	-.04	.01	.08	.03	.02
Patient Satisfaction	-.05	.01	.08	.04	.02

Note. All correlations non-significant ($p > .05$). Gender coded: 0 = male, 1 = female. Marital status coded: 0 = unmarried, 1 = married. Residency coded: 0 = non-native, 1 = native. Hospital type coded: 0 = public, 1 = private.

As shown in Table 10, no significant correlations emerged between study variables and demographic characteristics, suggesting that perceptions of communication, empathy, and satisfaction were relatively consistent across demographic groups.

4.9 Hierarchical Regression Analysis

To examine the unique contribution of empathy beyond communication, a hierarchical regression analysis was conducted, entering physician communication in step 1 and adding physician empathy in step 2.

Table 11

Hierarchical Regression Analysis Predicting Patient Satisfaction (N = 280)

Step	Predictor	B	SE B	β	t	p	R^2	ΔR^2
Step 1	Constant	11.48	1.08		10.63	< .001	.810	
	Physician Communication	0.81	0.02	0.90	34.53	< .001		
Step 2	Constant	9.15	1.15		7.96	< .001	.856	.046**
	Physician Communication	0.34	0.04	0.39	7.24	< .001		
	Physician Empathy	1.06	0.10	0.56	10.60	< .001		

Note. **$p < .001$ for ΔR^2.

In Step 1, physician communication alone explained 81.0% of the variance in patient satisfaction, $R^2 = .810$, $F(1, 278) = 1192.21$, $p < .001$. The addition of physician empathy in Step 2 explained an additional 4.6% of the variance, $\Delta R^2 = .046$, F change $(1, 277) = 112.36$, $p < .001$. This significant increment confirms that empathy contributes uniquely to patient satisfaction beyond the effect of communication alone.

4.10 Summary of Hypothesis Testing

Table 12

Summary of Hypothesis Testing Results

Hypothesis	Statement	Result
H1	Physician communication positively associated with patient satisfaction	Supported ($r = .90$, $p < .001$)

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Hypothesis	Statement	Result
H2	Physician empathy positively associated with patient satisfaction	Supported ($r = .92$, $p < .001$)
H3	Communication and empathy jointly predict satisfaction, each contributing uniquely	Supported ($R^2 = .856$, both predictors significant)
H4	Satisfaction differs across specialties	Not supported ($F = 1.24$, $p = .29$)
H5	Satisfaction differs by demographic characteristics	Not supported (all $p > .05$)

5. Discussion

The researchers have studied the relationships between patient satisfaction and the perceptions of patients about physician communication and physician empathy in Pakistani hospitals, as well as the joint predictive ability of the two constructs. The results were in line with the main hypotheses: communication and empathy had a significant correlation with satisfaction and when both the predictors were included together in a multiple regression analysis, they were significant variables explaining a large percentage of satisfaction (r2 =.856). Collectively, the findings suggest that the ratings of patients regarding care in this environment are closely connected to relational aspects of the consultation, namely, the effectiveness with which the physicians communicate and the perceived empathy of the latter.

5.1 Interpretation of Findings

Patient-centred communication theory explains these findings in a logical manner. The framework suggested by Street and colleagues suggests that the effect of clinician-patient communication on outcomes is mediated, in large part, by experience-based, proximal processes like shared understanding, trust/therapeutic alliance, emotional support and participation by the patient (Street et al., 2009). One of the most immediate results in this chain is patient satisfaction since it shows how patients evaluate the encounter per se- whether they thought they were respected, heard, informed and supported. Higher perceived communication quality in the current study was correlated with greater levels of satisfaction, which is also consistent with the larger evidence that has implicated patient experience as having a connexion with other quality-relevant outcomes (Doyle et al., 2013). Practically, patient-centred behaviours (e.g. listening, clarifying, involving patients, checking understanding) by physicians increase odds of patients judging visit competent, supportive, which in turn is translated into higher satisfaction.

Empathy was also found to have an equally strong relatedness to satisfaction (r =.92) or in the regression model, a statistically significant standardised coefficient (b =.56) as compared to communication (b =.39). This is in line with the evidence that empathic engagement is a key factor of patient experience and can yield satisfaction and adherence-associated outcomes (Derksen et al., 2013). Empathy can also have an effect on satisfaction as it conveys the message of recognition and respect-which are messages that the physician is aware of the patient viewpoint and also of how serious the patient perceives the problem to be. In addition, empathy can be frequently interpreted through communicative actions (tone, validation, responsiveness). Nonetheless, it is also a specific interpersonal judgement: a patient can be presented with clear information but still experience that s/he is not heard emotionally and thus becomes less satisfied.

One of the important contributions of the study is that, in the analysis of communication and empathy, each of the two had unique variance in satisfaction, and on the hierarchical regression, empathy explained an extra 4.6% of the unique variance, which communication had caused. This trend indicates that the constructs though closely associated are not overlapping in the encounter's judgement of patients. Instruments of communication are more likely to evaluate informational competence and interactional competence (e.g., organisation, clarity, the opportunity to ask questions), and empathy instruments evaluate the perceived emotional atonement and caring. The fact that independent effects do not disappear corresponds to the concept that cognitive and affective appraisal forms satisfaction: patients desire to comprehend their care and feel that they are understood. This exegesis also correlates with the results of interventions that indicate that patient-

reported outcomes may be improved with practises of empathic and positive communication (Howick et al., 2018) and that abilities associated with empathy can be enhanced through training, and with quantifiably beneficial results in clinical practise (Riess et al., 2012).

5.2 Pakistani Healthcare in a Contextual Perspective

Such correlations might be particularly strong in Pakistan, where the time and duration of interaction might be restricted by structural factors. Some datasets on international comparisons provide very low consultation lengths in Pakistan, summarised by Irving et al. (2017), which is a cause of concern that time pressures might limit patient-focused exchange. Relational micro-signals, especially, short listening intonations, signs of respect, confirmatory utterances, and personalised descriptions can be crucial under these conditions: they might be the major determinants of whether or not patients feel the experience to be of significance and concern. According to Pakistani studies, self-reported satisfaction is also a strong predictor of interpersonal dimension of doctor-patient interaction and that there could be a gap between patients and physicians in their self-reported perceptions of communication quality (Jalil et al., 2017; Hussain et al., 2022). The current results build on this literature by demonstrating that satisfaction is not only positively correlated with both communication and empathy, but they are also found to affect satisfaction ratings in a multivariate analysis, which may suggest that relational care is an appropriate leverage point to provide improvements to the service.

5.3 Specialty and Demographic Results.

However, against the anticipations, there were no major differences in satisfaction between clinical specialties (psychiatry, dermatology, cardiology). This observation implies that the role of relational care might be beyond specialty-specific differences in the content of consultation as well as patients. The quality of communication and empathic interaction seems to be appreciated equally by patients in various clinical settings, which justifies the universal applicability of patient-centred principles of care. The fact that there were no specialty differences can also indicate that measurements in settings were consistent since every patient was given the same standardised measures.

On the same note, there were no notable differences in demographic satisfaction. Although past studies have provided mixed evidence of gender, marital status, and other demographic predictors of satisfaction (Hussain et al., 2019; Atif et al., 2016), the current study has revealed amazing consistency of a satisfaction rating amongst demographic variables. This can mean that the effect in relation care quality, irrespective of patient attributes, is equally strong, or the high correlations between communication/empathy and satisfaction dominate the possibility of demographic differences.

5.4 Practical Implications

The results are applied practically to the hospitals and medical education in Pakistan. To start with, the training of communication must focus on high-yield patient-centred behaviours, which are practicable even when time-pressured- agenda setting, signposting, summarising, allowing questions, and brief comprehension cheques (teach-back). Second, empathy must be regarded as a procedural skill, but not a characteristic; it is possible to train brief empathic responses (naming emotion, validating concerns, expressing partnership) that are aligned with evidence that competencies related to empathy could be trained and correlated with improved patient-report outcome results (Riess et al., 2012; Howick et al., 2018). Third, the level of system-based supports is important: it is possible to create the conditions when communication and empathic interactions could be provided more systematically by reducing the number of interruptions during consultations, organising patient flows, and integrating supervision/feedback on relational skills.

The hierarchical regression result that empathy indicates unique variance on communication has significant implications on medical education. The training programmes need not presume that just the acquisition of communication skills can fully develop empathic skills. Rather, specialised empathy practise, such as perspective-taking, emotional sensitivity, and responsive communication, might need to be implemented to maximise patient experiences. Riess et al. (2012) proved that this type of training is viable and effective, and the patient-reported outcomes are improved and can be measured.

5.5 Integration with Theoretical Framework

The findings of the empirical research have a strong support to the patient-centred communication

theory by Street et al. (2009). The significant share of variance (85.60) explained by communication and empathy serves as the evidence that the relational variables have a central role in the patient satisfaction, as the theory suggests proximal outcomes to be mediators between communicative practises and health outcomes, shared understanding, emotional support, and trust. These unique, separate influences of communication and empathy are in line with the recognition of the theory that several channels, both informational and affective, influence the patient experience.

These relational mechanisms are even more universally established by the absence of specialty and demographic differences. This means that some of the fundamental processes that are applicable to various clinical situations, building trust, and offering emotional support, according to patient-centred communication theory, and the current findings indicate that patients equally appreciate these processes in whichever circumstances and irrespective of their individual conditions or demographic profiles.

5.6 Summary

Overall, the perception of physician communication and physician empathy by patients had a strong relationship with patient satisfaction, and both constructs had a unique contribution when analysed simultaneously. These findings support the patient-centred theory that highlights shared understanding and emotional sensitivity as the primary drivers of patient experience (Street et al., 2009) and imply that the ability to train skills on communication and empathy is a practical way of improving patient satisfaction in Pakistani hospital environments (Derksen et al., 2013; Riess et al., 2012; Howick et al., 2018). The lack of specialty and demographic variation means that those interventions which are designed to enhance relational care can be universally applied to a clinical setting and to a group of patients.

6. Limitations and Future Directions

6.1 Methodological Limitations

There are a few shortcomings that should be considered when interpreting the findings. To begin with, cross-sectional design does not allow causation. Even though the theoretical framework suggests communication and empathy to have a role in satisfaction, the theoretical relationships may be rather examples of reverse causality (satisfied patients rated communication and empathy positively) or third variable confounds. To determine causality longitudinal and experimental designs are needed.

Second, the common-method bias is even more likely with the use of single-source, single-time-point measures. All questionnaires were filled in by the patients at the same time, which may overstate correlation figures. The further studies ought to use the combination of data sources such as audio/video coding of interviews, physician self-rating, as well as observer ratings of communication and empathy.

Third, the participants were limited by levels of education as only the patients with intermediate education or higher were involved, which would hamper the generalizability to the context of less educated and non-English speaking population in Pakistan. Further research ought to include translated tools to record the experiences of a more diverse group of patients.

Fourthly, purposive convenience sampling might have also introduced selection bias; the participants who volunteered to participate might be different group-wise compared to those who declined but the high rate of participation and sample heterogeneity partly address this issue.

Fifthly, the research measured no possible moderators health literacy, cultural differences, or physician characteristics (e.g., age, gender, experience). The variables can influence the way patients view communication and empathy and should be explored in future practise.

Sixthly, although the diagnostics of multicollinearity is acceptable, the high correlation between communication and empathy (r=.91) casts their conceptual dissimilarity into doubt. Although hierarchical regression identified distinctive contributions of variance, future studies need to identify whether patients distinguish these dimensions, or they are part of a larger construct of relational quality.

6.2 Future Research Directions

Based on these findings, there are a number of future investigation avenues that are recommended. To begin with, the intervention studies need to assess the effect of training in communication and empathy on patient satisfaction. Comparison of communication-only training, empathy-only training, and the combination of training would provide information on the best training strategies.

Second, longitudinal studies of consistency and variability in patient perceptions (between two or more consultations) will help to understand that the development of communication and empathy assessments follows a development pattern, especially in the case of chronic illnesses where the relationships between patients and physicians are developed over the years.

Third, qualitative studies examining the interpretation of the concept of physician communication and empathy by patients will contribute to the knowledge about the role of the two concepts in the Pakistani cultural context. Survey data and in-depth interviews would be incorporated into mixed-method designs that may reveal culturally relevant issues of relational care.

Fourth, the generalizability of the findings will be tested by comparing the research in different regions of Pakistan and in different medical procedures in a primary care, tertiary care, and rural versus urban setting. The study being analysed was restricted to two urban areas; the trends can vary in the countryside, where healthcare services are scarce.

Fifth, analysing other outcomes other than satisfaction, including treatment adherence, health-related quality of life, and clinical endpoints will expand the understanding of how communication and empathy impact on the general health of the patient.

Sixth, studies of physician-level variables (e.g., burnout, job satisfaction, training background) that determine communicative behaviours and empathic displays will be used to design the interventions in the organisation to improve the well-being of physicians and the quality of their relational care.

6.3 Methodological Recommendations of Future Research

Methodological weaknesses that need to be filled in future research include:

1. The use of multi-method measurement techniques, such as observational coding of the consultation, physiological measures of patient stress or engagement, and reports of multiple informants.
2. The application of longitudinal designs by having repeated measures on successive consultations.
3. The inclusion of translated culturally validated tools of the Urdu-speaking population.
4. Stratified sampling to make sure that there is representation in terms of education level, socioeconomic status and geographic area.
5. Evaluating the possible moderators (patient health literacy, cultural values, and physician characteristics).
6. A test of mediation models to explain processes affecting communication/ empathy to satisfaction and other outcomes.

7. Conclusions

In this study, there is solid evidence that patient perceptions of their interactions with their physicians and empathy are closely linked to patient satisfaction in the context of Pakistani hospitals. All constructs had a unique contribution to satisfaction when combined to explain the satisfaction scores with 85.6 percent of the variance being covered. These results support the patient-centred communication theory, as well as emphasise the primary role of relational quality of care as a factor that defines patient experience, even in the time-limited clinical settings. No specialty and demographic differences had been observed, which suggests that the communication and empathy have a general effect in all clinical situations and groups of patients which validates the general applicability of the principles of patient-centred care. These findings, within the framework of Pakistani context in which structural constraints limit the consultation duration, indicate the need to maximise relational micro-signals of respect, understanding and caring within short interactions.

Medical education and continuing professional development programs should prioritize both communication skills and empathic engagement as trainable competencies that meaningfully influence patient experience. System-level supports, including reduced interruptions, improved patient flow, and supervision focused on relational skills, can create conditions in which high-quality communication and empathy can be consistently delivered.

In conclusion, this study contributes to the growing evidence base linking relational care to patient satisfaction and provides context-specific findings to inform quality improvement in Pakistani healthcare settings. By demonstrating that both communication and empathy matter and that each contributes uniquely, the findings support comprehensive approaches to enhancing physician-patient interactions that address both

informational and emotional dimensions of care.

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Conflict of Interest

The authors declare no conflict of interest.

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Data Availability Statement

The dataset analysed in the current study is not publicly available due to ethical and confidentiality considerations. However, it is available from the corresponding author upon reasonable request, subject to institutional approval.

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