Original Article

JHSMR Journal of Health Science and Medical Research

Enhancing Patient Satisfaction through Effective Doctor–Patient Communication: A Mixed–Methods Study in Eastern India's Secondary and Tertiary Care Hospitals

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Received 26 June 2025 ● Revised 4 September 2025 ● Accepted 10 October 2025 ● Published online 19 June 2026

Abstract:

Objective: Effective doctor–patient communication (DPC) is critical for patient satisfaction and improved health outcomes. Despite physicians often perceiving their communication as adequate, patient feedback highlights significant gaps, especially in complex socio–economic and cultural contexts. This study examines DPC and patient satisfaction in secondary and tertiary care hospitals in Bankura District, Eastern India.

Material and Methods: This observational, cross–sectional study used a mixed–methods approach over 18 months, assessing DPC and patient satisfaction among 212 inpatients in two hospitals. Data collection included reviews of medical records, patient questionnaires (DPC–15 and Patient Satisfaction Questionnaire Short Form (PSQ–18) scales), and qualitative interviews. Statistical analyses, including Mann–Whitney U, Kruskal–Wallis tests, and multivariate linear regression, explored associations between DPC and socio–demographic factors.

Results: Findings revealed lower DPC scores among patients from lower socio–economic backgrounds, marginalized castes, and urban areas. Higher satisfaction correlated with longer consultations and fewer prior incidents involving doctors. Regression analysis indicated that residence, socio–economic status, caste, consultation duration, and doctor experience with prior incidents explained 71.9% of DPC score variability. Qualitative data highlighted concerns about care quality, delays in diagnosis, and challenges related to inadequate infrastructure.

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J Health Sci Med Res 2026;44(5):e20261367
doi: 10.31584/jhsmr.20261367
www.jhsmr.org

Conclusion: DPC quality in Bankura District is influenced by socio–economic and structural factors. Improvements in DPC require addressing systemic issues, such as consultation time and doctor–patient ratios, and fostering supportive environments to reduce physician burnout. Enhancing doctors' awareness of patient–specific social and cultural factors could bridge communication gaps, fostering greater patient satisfaction and better healthcare outcomes.

Keywords: doctor–patient communication, mixed–method study, patient satisfaction

Introduction

Effective doctor–patient communication (DPC) lies at the heart of quality healthcare, fostering trust, satisfaction, and positive outcomes. Communication and interpersonal skills are crucial for physicians, enabling them to gather essential information, provide accurate diagnoses, offer therapeutic instructions, and build meaningful relationships with patients[1]. However, while physicians often view their communication as sufficient, patient feedback indicates a gap, with many desiring better interaction[2]. Indeed, a strong therapeutic relationship requires more than basic communication skills; it demands a combination of patient– and doctor–centered approaches to address both clinical and psychosocial aspects of care[3].

Historically, the doctor–patient dynamic has evolved from a paternalistic model to a more collaborative, patient–centered approach. This shift reflects broader societal changes, where patients are increasingly informed, involved in decision–making, and aware of their rights[4]. While once revered, doctors today face heightened scrutiny, with growing concerns about professionalism, transparency, and the commercialization of healthcare. Reports of poor communication and a perceived decline in empathy contribute to an erosion of trust and, in extreme cases, even violence against healthcare workers[5].

Patient satisfaction, an essential measure of healthcare quality, is deeply intertwined with effective communication. Studies reveal that patients value physicians who are compassionate, attentive, and willing to answer questions thoroughly[6]. Satisfaction not only influences clinical outcomes but also impacts healthcare costs, patient retention, and malpractice claims[7]. In India, the transformation of healthcare relationships mirrors global trends. Despite recent policy efforts, such as the National Institute of Health and Family Welfare (NIHFW)'s communication training rollout for public–sector physicians in 2025, doctor–patient communication in India remains constrained by short consultation times (often under 10 minutes), heavy patient volumes, and limited formal soft–skills training, particularly in areas of empathy, explanation, and shared decision–making[8]. Language diversity and inadequate health literacy further impede effective exchanges, while the proliferation of online misinformation adds complexity to patient expectations and trust formation[9]. As a result, dissatisfaction and conflict–especially in overburdened public settings–continue to challenge the healthcare system, underscoring the necessity for patient–centered research to explore communication breakdowns in depth. This study sought to evaluate DPC within secondary and tertiary hospitals in Bankura District, assessing its impact on patient satisfaction to better understand and improve healthcare outcomes in this context.

Material and Methods

This study employed an institution–based, observational, cross–sectional design, with a mixed–methods approach (explanatory sequential design) to assess DPC and patient satisfaction among inpatients in secondary (Khatra Sub–Divisional Hospital) and tertiary (Bankura

Sammilani Medical College & Hospital) care facilities in Bankura District, West Bengal, India. The study spanned 18 months from April 1, 2020 to September 30, 2021.

Bankura Sammilani Medical College, established in 1956, was a major site for data collection. As a tertiary care facility, it accommodates 1,441 beds, with a bed turnover rate of 94.6 and a bed occupancy rate of 111.1 (2017). The hospital's postgraduate programs in Medicine, Surgery, Pediatrics, and Gynecology & Obstetrics are accredited, making it an important center for advanced medical education and clinical practice. Khatra Sub-Divisional Hospital, in contrast, is a secondary care facility with a 100-bed capacity, a bed turnover rate of 151.5 per year, and a bed occupancy rate of 148.4. This hospital began functioning in 2006 and has since been an accessible healthcare resource for the surrounding communities.

The study population comprised all admitted patients in the departments of General Medicine, Pediatrics, General Surgery, and Gynecology & Obstetrics in both hospitals during the study period, along with the doctors who attended to them. The inclusion criteria limited the sample to patients who received a single doctor's visit within the first 24 hours of admission and the corresponding attending doctors. In the case of pediatric patients, their primary caregiver who attended to them within the hospital was considered a study subject. This approach was intended to ensure a standardized assessment of initial doctor–patient interactions, minimizing variability introduced by multiple consultations or extended hospital stays. Exclusion criteria were set to maintain focus and relevance, and included critically ill patients, those who had a history of unconsciousness post-admission, unwilling participants, individuals with communication barriers (such as language differences, deafness, or muteness), and those with mental instability or altered consciousness. Ultimately, 15 patients were excluded based on these criteria.

As a thorough literature search did not reveal any prior studies on the status of doctor–patient communication in the target setting, the prevalence of good DPC (p) was conservatively assumed to be 50% to ensure the maximum possible sample size. The final sample size calculation used the formula $n=z^2pq/d^2$ (where, n=sample size, z=value of standard normal deviate=1.96 at 95% confidence interval, p=proportion of good DPC, q=100 –p, d=allowable error=10%), yielding a sample size of 96 for each hospital level. After adjusting for a 10% non-response rate, the final sample size was set at 212. A total of 108 patients from the tertiary care hospital and 104 from the secondary care hospital were selected to ensure approximately equal representation from each clinical department (Medicine, Surgery, Pediatrics, and Obstetrics & Gynecology) at both levels of care. All faculty members and Resident Medical Officers (RMOs) who attended the selected patients were included in the study. No sampling was conducted for doctors. In total, 18 doctors from the tertiary care center and 4 from the secondary care hospital participated. Data collection was systematically scheduled for two days each week, selecting one patient per department per day through simple random sampling, where a lottery method was employed to ensure unbiased participant selection (Figure 1).

Three primary tools were employed to capture comprehensive data on DPC and patient satisfaction.

The data collection involved several key components. First, Bed Head Tickets (BHTs) were reviewed to extract socio-demographic and clinical variables, which provided foundational patient data. Second, a semi-structured, pre-tested questionnaire was used to assess DPC and patient satisfaction. DPC was measured using the DPC-15 scale, which consists of 15 items rated on a four-point Likert scale, with scores ranging from 15 to 60-higher scores indicating better communication[10]. Patient satisfaction was assessed using the PSQ-18 scale, a widely validated

tool that evaluates satisfaction across seven subscales, with scores adjusted to reflect overall satisfaction levels[11]. For validation, both the DPC–15 and PSQ–18 scales were reviewed by subject matter experts and translated into Bengali, followed by back–translation into English to ensure linguistic consistency. Pretesting was conducted at Bishnupur Sub–divisional Hospital on a sample of 20 patients, confirming the reliability of these instruments. This study employed an explanatory sequential mixed–methods design to better understand patient experiences with DPC. Initially, quantitative data were collected using a standardized communication scale to identify overall patterns and levels of perceived communication quality. Patients who scored below 50% were then purposefully selected for follow–up qualitative interviews to explore their perceptions and experiences in greater depth. Interviews were recorded on an audio recording device. This sequential approach allowed the researchers to use the qualitative phase to explain and elaborate on the quantitative findings, particularly the low scores, by uncovering underlying factors, emotional responses, or contextual issues not captured in the survey. Transcribing and analyzing these interviews provided rich, narrative data that enhanced the interpretation of the initial results and offered actionable insights for improving DPC practices.

Data collection proceeded under stringent ethical oversight, including approval from the Institutional Ethics Committee (BSMC/Aca:–289 dated 27/01/20) and permission from the relevant hospital authorities. Specifically, informed consent was obtained separately for these

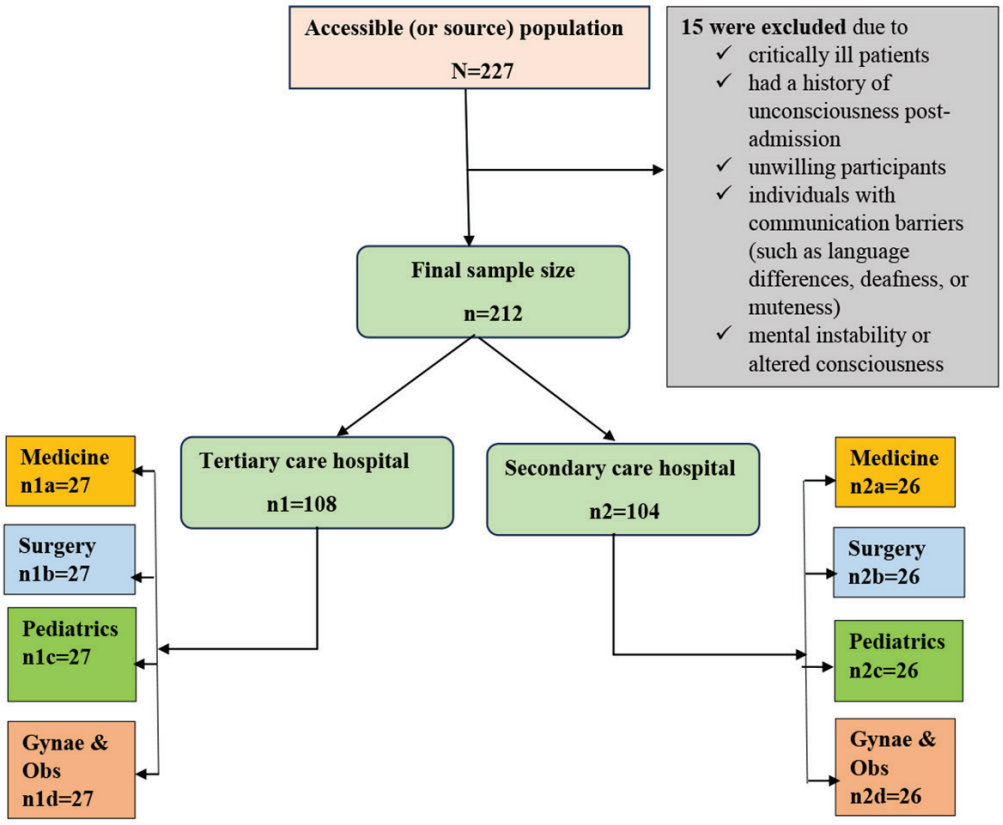

Figure 1 Participant flow diagram

participants. The consent form was read aloud to each individual and included detailed information about the study's purpose, procedures, and their rights as participants. Only those who agreed and signed the consent form proceeded to the interview. This process ensured that all participants were fully informed and voluntarily engaged in the study. Interviews were conducted face-to-face with patients twice a week between 9 a.m. and 1 p.m., preserving participant privacy and anonymity throughout. For patients younger than 18 years, a caregiver responded on their behalf.

Children may lack the developmental capacity to reliably report on healthcare experiences, making caregiver proxy responses a necessary and ethically appropriate approach. Caregivers, being closely involved in the child's care, can provide informed observations, and steps were taken to reduce bias by instructing them to reflect the child's perspective rather than their own.

Doctors attending to the patients were asked to complete a self-administered questionnaire containing demographic details and experiences, ensuring confidentiality. For qualitative data, in-depth interviews were conducted with patients who scored low on DPC, identifying their perspectives on communication barriers. These interviews with both patients and doctors were recorded with permission, transcribed verbatim, and analyzed.

Quantitative data were processed using Microsoft Excel and analyzed in Statistical Package for the Social Sciences (SPSS) version 16.0[12]. The study's main outcomes DPC scores and patient satisfaction scores were treated as quantitative variables and analyzed using median and interquartile ranges due to their non-normal distribution Normality of the data was assessed using both graphical methods (histograms, Q-Q plots) and statistical tests (Shapiro–Wilk test and Kolmogorov–Smirnov test). Bivariate analysis, utilizing the Mann-Whitney U test and Kruskal-Wallis test, assessed associations between independent variables and these outcomes, with a significance threshold set at p-value<0.05.

Significant variables identified in bivariate analysis were then included in a multiple linear regression model, allowing for the identification of predictive factors. Associations between DPC and patient satisfaction scores were evaluated through Spearman's correlation coefficient, providing insight into the degree and direction of correlation.

Qualitative data were analyzed using thematic analysis[13]. Responses from open-ended questions were systematically transcribed, coded, and reviewed to construct themes related to perceived barriers in DPC. Themes were refined through constant comparison with new data, enhancing the reliability and depth of insights into patients' perspectives on DPC quality.

This mixed-methods approach provided a nuanced understanding of the interaction between communication practices and patient satisfaction, highlighting areas for potential improvement in healthcare delivery at both secondary and tertiary care levels. The comprehensive data collection, stringent sampling, and thorough analysis strategies contribute to the robustness of findings, supporting actionable recommendations for enhancing DPC in diverse healthcare settings. The integration of qualitative explanations with quantitative measurement strengthens the validity of the findings and supports actionable recommendations to enhance DPC in diverse healthcare settings.

Results

The majority of patients (35.4%) were aged 22–31, with a predominance of females (52.8%). Most patients (83%) were Hindu, 53.3% were from the General Caste, and 64.2% lived in joint families. About 62.3% had an education level up to secondary school, and 17% were illiterate.

Most patients (41.4%) were homemakers, and a large portion (34.4%) were from the lower socioeconomic class (Class V). The majority (76.9%) were from rural areas.

Most doctors (75.9%) were aged 30–45, predominantly male (84.2%), Hindu (96.7%), and from the General Caste (57.9%). Most were married (92.1%) and held Doctor of Medicine [MD]/Master of Surgery [MS]/The Diplomate of National Board [DNB] qualifications (71.0%).

About 21.1% had experienced untoward incidents with patients in the past year, though the majority (78.9%) had not. Most doctors (92.1%) expressed partial job satisfaction. About 62.3% had consultation times under five minutes, with privacy not maintained in 73.1%.

The distributions of the DPC Score and the General Satisfaction Score were both negatively skewed and did not follow a normal distribution. For the DPC score, the median (interquartile range) was 44 (40–49), on a scale from 15 to 60. For the General Satisfaction Score, the median (interquartile range) was 6 (5–7), on a scale from 2 to 10. These scores suggest a concentration of values closer to the upper end of each scale (Figure 2).

DPC scores were significantly lower for parents of children under 12 and patients over 41, and scores were higher for female patients than for male patients. No significant relationship was found between DPC scores and patients' religion or occupation. However, DPC scores were notably lower for Scheduled Caste/Tribe patients, those in joint families, and patients from lower socioeconomic classes and urban areas. Higher levels of education among patients correlated with better DPC scores, while illiterate patients had the lowest scores.

There was no significant association between DPC scores and the doctor's gender, religion, or caste. However, DPC scores were lower for patients treated by doctors who had experienced untoward incidents with patients in the past year or who reported partial job satisfaction. DPC scores were lower among patients with consultations under five minutes, those who felt privacy was lacking, and those attended by doctors over 30 years old. Married doctors and doctors with higher qualifications (MD/MS/DNB or Postgraduate [PG] Diploma) were also associated with lower DPC scores (Table 1).

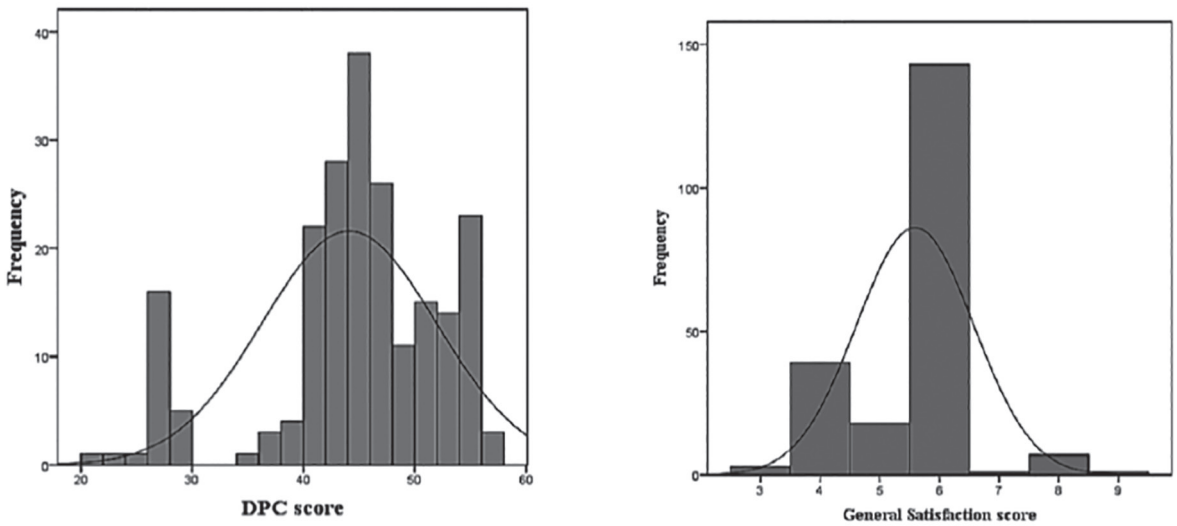

Figure 2 Distribution of doctor–patient communication score and general satisfaction score (n=212)

The above significant independent variables, which were qualitative data, were transformed into dummy variables by coding 0 and 1. Sub-variables related to a higher DPC score were coded as 1; the rest were coded as 0 (Table 2).

After coding, the Mann–Whitney U test was conducted on dummy variables, and these were also found statistically significant.

Table 1 Distribution of doctor–patient communication score according to the socio-demographic and personal profile of the patient and doctor

Variables	Sub variables	Doctor patient Communication score (mean rank)	p-value
Age of the patient (In years)	<12	65.88	<0.001**
	12–21	131.75	
	>22–31	114.09	
	>31–41	119.04	
	>41	102.02	
Gender of the patient	Male	96.55	<0.05*
	Female	115.38	
Religion of the patient	Hindu	104.51	>0.1*
	Muslim	116.22	
Caste of the patient	General	121.49	<0.01**
	Scheduled caste	104.93	
	Scheduled tribe	69.92	
	Other backward class	120.02	
Type of family of the patient	Joint	100.00	0.030*
	Nuclear	118.14	
Education of the patient	Illiterate	69.52	<0.05**
	Up to primary	82.25	
	Up to secondary	97.68	
	Higher secondary or above	105.61	
Occupation of the patient	Unemployed	81.99	>0.05**
	Labourer	88.24	
	Home maker	75.91	
	Businessman	108.38	
	Service (Govt./Privt.)	102.56	
Socio-economic status of the patient	I (upper class)	196.42	<0.001**
	II (upper middle class)	125.51	
	III (middle class)	125.17	
	IV (lower middle class)	108.45	
	V (lower class)	57.33	
Residence of the patient	Rural	124.48	<0.001*
	Urban	46.69	
Age of the doctor	<30 years	136.19	<0.05**
	30–45 years	102.71	
	>45 years	102.69	
Gender of the doctor	Male	105.45	>0.10*
	Female	124.04	
Religion of the doctor	Hindu	105.59	>0.10*
	Muslim	133.29	

Table 1 (continued)

Variables	Sub variables	Doctor patient Communication score (mean rank)	p–value
Caste of the doctor	General	98.18	>0.10**
	Scheduled caste	118.31	
	Scheduled tribe	110.94	
	Other backward class	133.29	
Marital status of the doctor	Unmarried	143.25	<0.001*
	Married	102.24	
Education of the doctor	MBBS	124.87	<0.05**
	MD/MS/DNB	101.75	
	PG Diploma	89.70	
Approximate duration of consultation in visit	<5 minutes	74.16	<0.001*
	≥5 minutes	159.87	
Maintaining privacy during consultation as per patient's perception	Yes	141.41	<0.001*
	No	99.58	
Patient–related untoward incident of doctor in the last year	Yes	66.75	<0.001*
	No	112.08	
Job satisfaction of the doctor as per their perception	Fully satisfied	131.00	<0.05*
	Partially satisfied	103.08	

*Mann–Whitney U test **Kruskal Wallis test

Govt.=Government, Privt.=Private, MBBS=Bachelor of Medicine and Bachelor of Surgery, MD=Doctor of Medicine (a postgraduate medical degree), MS=Master of Surgery (a postgraduate medical degree), DNB=The Diplomate of National Board (a postgraduate medical degree)

Table 2 Coding of patient and doctor–related dummy variables for multiple linear regression regarding doctor–patient communication

Variables		Coding	
		0	1
Patient–related Independent variables	Gender	Male	Female
	Caste	SC, ST	General, OBC
	Type of family	Joint	Nuclear
	Education	Illiterate, primary	Secondary, higher secondary
	Socio–economic status	Class IV, V	Class I, II, III
	Residence	Urban	Rural
	Duration of consultation	<5 minutes	≥5 minutes
	Privacy during consultation	No	Yes
	Age	Raw data	
Doctor–related independent variables	Age	Raw data	
	Marital status	Married	Unmarried
	Education	MD/MS/DNB/Diploma	MBBS
	Patient–related untoward incident in the last year	Yes	No
	Job satisfaction	Yes	No
Dependent	Doctor–patient communication	Raw data (score)	

SC=Scheduled Caste, ST=Scheduled Tribe, OBC=Other Backward Caste, MD=Doctor of Medicine (a postgraduate medical degree), MS=Master of Surgery (a postgraduate medical degree), DNB=The Diplomate of National Board (a postgraduate medical degree), MBBS=Bachelor of Medicine and Bachelor of Surgery

ANOVA test (F=108.764, p–value<0.001) showed that the stepwise multiple linear regression models were statistically significant. A linear relationship was found between dependent and independent variables. As tolerance scores were above 0.2 and VIF scores were below 10, multicollinearity was absent here, meaning that residuals were independent as autocorrelation was absent [Durbin Watson value was closer to 2 (1.664)]. The distribution curve and P–P plot showed that the standardized residuals were normally distributed. Standardized predicted values and standardized residuals in the scatter plot show that homoscedasticity was present.

A forward stepwise multiple linear regression model was employed in this study to identify the most significant predictors of DPC while controlling for potential confounding variables. Forward selection begins with no predictors in the model and adds variables one at a time based on the statistical criteria (e.g., p–value), ensuring that only those variables that significantly improve the model's explanatory power are retained. In the multiple linear regression analysis, we found that 71.9% of the variance in the DPC score was explained by residence, socio–economic status, caste of the patient, duration of consultation, and a history of facing any untoward incident, like verbal or physical abuse, in the last year by the attending doctor. Individually, residence, socio–economic status, caste of the patient, duration of consultation, and a history of facing any untoward incident in the last year by the attending doctor explained the 41.2%, 20.3%, 7.3%, 2.3% and 0.8% variation in the DPC score, respectively. The effect sizes (Cohen's f^2) of the individual predictors, residence, socio–economic status, caste, consultation duration, and prior untoward incident involving the doctor, were 0.7, 0.254, 0.079, 0.024, and 0.008, respectively. According to Cohen's guidelines (small ≥0.02, medium ≥0.15, large ≥0.35), residence and socio–economic status had large and medium effects, while the remaining predictors had small or negligible effects (Table 3).

Table 3 Coefficient of correlation statistics in stepwise multiple linear regression analysis Model Summary[f]

Model	R	R square	Adjusted R square	Std. error of the estimate	Effect size	Durbin–Watson
1	0.644[a]	0.415	0.412	6.009		
2	0.787[b]	0.619	0.615	4.864		
3	0.832[c]	0.692	0.688	4.378		
4	0.847[d]	0.717	0.711	4.211		
5	0.852[e]	0.725	0.719	4.158		1.664

a. Predictors: (Constant), residence
b. Predictors: (Constant), residence, socio–economic status
c. Predictors: (Constant), residence, socio–economic status, duration of consultation
d. Predictors: (Constant), residence, socio–economic status, duration of consultation, caste of patients
e. Predictors: (Constant), residence, socio–economic status, duration of consultation, caste of patients, any patient–related untoward incident of the doctor in the last year
f. Dependent Variable: DPC score

Linear regression equation

Doctor Patient Communication Score=8.486 (Residence of patients)+4.829 (SES of patients)+4.504 (Duration of Consultation of doctors)+2.525 (Caste of patients)+1.551 (any patient–related untoward incident faced by the doctor in the last year)+30.9

There was a moderately positive statistically significant correlation (Spearman's correlation=0.444) between DPC and general satisfaction.

Qualitative analysis

A. Research team and reflexivity

Interviewer characteristics, relationship with participants, and reflexivity

–The qualitative interviews were conducted by trained researchers with a background in public health and qualitative interviewing.

–Researchers were not involved in the participants' clinical care to avoid power dynamics or bias.

–Interviewers maintained a neutral stance, using open–ended questions to allow patients to freely express their experiences.

Reflexivity was addressed by the research team through regular debriefings and peer discussions to minimize subjective interpretations and interviewer influence.

B. Study design

Sampling and recruitment

–Patients were selected purposively from the quantitative phase based on their DPC score. Only those scoring below 50% (n=24, or 11.3%) were included for in–depth interviews to explore their negative experiences with communication.

–All selected patients consented to participate.

Data saturation

–Though the number of eligible participants was relatively small (24), thematic saturation was observed after approximately 20 interviews. However, all 24 were analyzed to capture the full range of perceptions.

–Saturation was assessed through concurrent coding and the identification of repeating themes.

Interview guide and data collection

–A semi–structured interview guide was developed based on the literature and pilot–tested before data collection.

–Interviews were conducted in private settings within the hospital and lasted approximately 20–30 minutes each.

–Notes and audio recordings were made, and all interviews were transcribed verbatim in the local language before translation to English.

C. Analysis and findings

Data analysis, themes, and participant quotations

Approach to analysis:

–Thematic analysis was used to identify patterns in the data.

–Transcripts were coded independently by two researchers (Dr. SR–Post–graduate trainee & Dr. RS–Assistant Professor), followed by joint discussions to resolve discrepancies, reviewed and collated into subthemes and overarching themes.

Emergent codes, themes, and supporting quotes:

Code 1: Dissatisfaction

Theme 1: Dissatisfaction with quality of patient care

Patients described feelings of neglect and lack of engagement from their doctors:

P19: "The doctor didn't examine me physically at all."

P13: "The doctor didn't spend enough time addressing my questions."

P01: "There was no explanation given about my diagnosis."

P08: "No clarity on how long I'd need to stay in the hospital."

P22: "Since admission, the doctor has only visited once. It's been 19 hours without any follow-up."

Code 2: Communication delay

Theme 2: Delays in communicating diagnosis and prognosis

Participants expressed distress over delayed or absent information:

P15: "I've been waiting two days to receive my coronavirus disease 2019 test results. It's causing me a lot of anxiety."

P13: "My treatment is on hold because I haven't been scheduled for an magnetic resonance imaging. I've asked multiple times but still don't have any answers."

Code 3: Resource deficiency

Theme 3: Perceived issues with infrastructure and doctor–patient ratio

Some complaints pointed to systemic constraints:

P10: "After admission, I wasn't given a proper bed. I'm being treated on the floor, far from the nursing station, which makes it hard for staff to attend to me on time."

P17: "It's difficult for doctors to manage such a high patient load alone. With more doctors, we could receive better care."

Integration of qualitative and quantitative findings

Multiple linear regression analysis showed that a lower DPC score was significantly associated with shorter consultation times, and thematic analysis indicated that patients reported dissatisfaction for the same reason.

Discussion

In this study, 212 patients or caregivers from diverse departments such as Medicine, Surgery, Gynecology & Obstetrics, and Pediatrics were selected through simple random sampling. Additionally, 38 doctors were interviewed to provide insights into their professional profiles. The patient participants had an average age of 25.2 years (±14.5 SD), with a median of 24 years and a range spanning from 1 to 70 years. The majority of participants were in the 22–30 age group (35.4%), and more than half were female (52.8%). The median DPC score was 44, with an interquartile range of 9, slightly lower than the median score of 52 (IQR 10) reported in a similar French emergency department study by Mélanie Sustersic et al. (2020)[10].

Several significant associations were found between DPC scores and various patient factors, including socio-economic status, residence, caste, duration of consultation, and whether the doctor had experienced untoward incidents in the past year. The study highlighted that patients from lower socio-economic backgrounds scored significantly lower in DPC, as classified by the updated B.G. Prasad scale (2021). This result echoes the findings of Willem S. et al. (2021), who found that individuals from lower socio-economic groups generally experience less positive socio-emotional engagement from healthcare providers[14]. These patients are often subjected to less participatory consultation styles and receive fewer opportunities for information sharing, guidance, and collaborative communication[14–17].

A key factor contributing to these disparities is the communication style of the doctor, which is often influenced by the patient's social status. Patients from higher social classes are typically more communicative and assertive, prompting doctors to be more informative and engaging. In contrast, patients from lower socio-economic strata, who may feel a perceived status gap, often refrain from asking questions or expressing their concerns, leading to

less interaction and poorer communication. This perceived gap can discourage doctors from taking the time to build rapport or listen attentively[18].

The study also found that Scheduled Tribe patients had lower DPC scores, likely due to language barriers. In this district, many members of Scheduled Tribe communities speak languages such as Santali instead of Bengali. Sabherwal et al. (2018) support this finding, with 80% of patients reporting communication difficulties with doctors due to language differences[19].

Interestingly, rural residents scored higher on the DPC scale. This could be due to their preference for a directive, command-and-control communication style, which has been linked to higher satisfaction in rural, low-income, and illiterate populations. A similar study by Mehra et al. (2021) found that rural patients were more satisfied with doctors who used directive, expressive, or relational communication styles, whereas urban patients, with higher social status and education, preferred more analytical and relational approaches[20].

The duration of the consultation also emerged as a key factor influencing communication quality. Longer consultations, particularly those lasting over 5 minutes, were associated with better DPC scores, aligning with findings by Valverde Boliver et al. (2020), who noted that longer consultations promote more effective communication. However, time constraints in clinical settings often limit doctors' ability to engage in longer interactions, which diminishes the overall quality of DPC[21].

Lastly, the study revealed that doctors who had experienced patient-related incidents in the past year had significantly lower DPC scores. This finding corroborates the work of Kaur A et al. (2021), who found that workplace violence negatively impacted doctors' psycho-social well-being, thereby reducing their effectiveness in patient care[22]. The effects of workplace violence extend beyond the individual, contributing to lower morale, increased stress, and diminished productivity, which ultimately harms the quality of doctor-patient interactions[23].

Research has consistently demonstrated a positive relationship between effective DPC and patient satisfaction. Clear and empathetic communication builds trust, enhances patients' understanding of their care, and boosts confidence in their healthcare providers. Techniques like open-ended questions, reflective statements, and attentive non-verbal cues help patients feel heard and supported, which is linked to higher satisfaction scores. Structured approaches that include patient input and clear explanations reduce misunderstandings and improve satisfaction by making patients feel valued and more likely to adhere to treatment plans. Quantitative studies support this connection; one path analysis model found that empathy and clarity notably increased patient satisfaction, loyalty, and adherence to advice. Additionally, physicians who address both informational and emotional needs, taking adequate time to discuss diagnoses and treatment expectations, see significant improvements in patient satisfaction[24].

In the qualitative study, we identified several factors contributing to poor DPC, including dissatisfaction with the quality of patient care, delays in conveying diagnoses and prognoses to patients or their families, and inadequate infrastructure coupled with an unfavorable doctor-patient ratio.

This mixed-methods study provided a comprehensive understanding of DPC using validated tools and systematic sampling. Its strengths include robust analysis and qualitative insights into patient experiences. However, the cross-sectional design limits causal inference. Generalizability is restricted, and caregiver proxies may not fully capture pediatric perspectives. Future longitudinal follow-up studies are suggested to assess the sustainability of service utilization patterns over time, as well as cross-cultural comparative studies to explore differences in adolescent health-seeking behaviour across diverse socio-cultural

settings. These additions aim to strengthen the practical relevance and applicability of our findings.

Conclusion

This study found that DPC scores were significantly impacted by several factors, including socio-economic status, residence, caste, consultation duration, and the occurrence of untoward incidents in the previous year. Patients from lower socio-economic backgrounds, urban areas, and marginalized castes tended to have poorer communication experiences. Moreover, longer consultations and a more supportive work environment for doctors contributed to better communication. To improve DPC, healthcare systems should focus on training doctors to be more aware of the socio-economic, cultural, and emotional factors that influence patient communication. Efforts should be made to ensure longer consultation times and reduce the doctor-patient ratio to allow for more personalized care. Additionally, creating a safer and more supportive environment for healthcare workers, including addressing the issue of workplace violence, is crucial for improving doctor engagement and communication quality. These measures would help bridge communication gaps and enhance patient satisfaction and outcomes.

Acknowledgement

The research team is thankful and indebted to all the participants of the study, including patients and doctors. Without their feedback, the study could not be completed.

Conflict of interest

No

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