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Original Article

IMPACT OF PERIOPERATIVE QUALITY-INTERACTION ON PATIENT SATISFACTION UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY

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Background: Patient satisfaction is a crucial indicator of healthcare quality that influences patients' outcomes and healthcare facility performance. In the surgical context, where anxiety prevails, the perioperative patient-healthcare worker (HCW) interaction matters a lot. This study assessed the association between perioperative quality-interactions and overall patient satisfaction among patients undergoing cholecystectomy at Qazi Hussain Ahmad Medical Complex (QHAMC), Nowshera. **Methods:** A cross-sectional study was conducted in the Department of Surgery, QHAMC, Nowshera, from July to October 2024. Through a consecutive sampling technique, 102 patients were asked questions based on a modified Clinician and Group-Consumer Assessment of Health Care Providers and Systems Adult Visit Survey. SPSS-22 was used for Mann-Whitney U test and Kruskal-Wallis H test. $p<0.05$ was considered statistical significance. **Results:** A total of 102 patients with a mean age of 44.0±11.84 years, of whom 33(32.4%) were male, participated in the study. Most patients rated their overall health as excellent 38(37.3%). Mann-Whitney U tests indicated a statistically significant difference between HCWs' encounters with patients ($p<0.05$). The Kruskal-Wallis test revealed a significant difference in age group and employment status with overall health rating and frequency of patient encounters with HCW, whereas the behaviour of HCW with employment status only ($p<0.05$). **Conclusion:** This relationship between perioperative quality-interaction and patient satisfaction undergoing laparoscopic cholecystectomy is significant. While pre- and intra-operative communication excels, postoperative follow-up and HCW soft skills require refinement. Our setups can align their practices with global patient-centred care standards by addressing demographic disparities and systemic gaps.

Keywords: perioperative; quality-interaction; patient satisfaction; surgery

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INTRODUCTION

Patient satisfaction is an essential indicator of healthcare quality, influencing clinical outcomes, patient compliance, and healthcare facility performance.[1] In surgical contexts, where anxiety and uncertainty are heightened, the quality of interactions between patients and surgical teams becomes critical.[2] The interaction is any contact or communication between the patient and healthcare workers (HCW). The perioperative period, spanning pre-, intra-, and postoperative phases, presents distinct opportunities for interactions that can alleviate patient concerns, build trust, and shape perceptions of overall care.[3]

Laparoscopic cholecystectomy is one of the most common general surgical procedures worldwide and carries specific interventional challenges, from explaining the indication and procedure to managing postoperative expectations.[4] Current research has mainly not addressed the fine-grained study of pre-operative interactions, leaving a gap in understanding their specific effect on patients' overall satisfaction with health.[1,5] Such a gap is especially prominent in areas such as Pakistan, where patients tend to delay presenting to care due to societal stigmatisation, ignorance, and culture.[6] Such delays deteriorate clinical states and disrupt patient-provider communication dynamics, necessitating investigating how customised pre-operative interactions may enhance patient perceptions.

This study aims to bridge these gaps by assessing the association between perioperative quality-interaction and overall patient satisfaction scores among the patients undergoing cholecystectomy at Qazi Hussain Ahmad Medical Complex (QHAMC), Nowshera KP. Employing a modified Clinician and Group-Consumer Assessment of Health Care Providers and Systems (CG-CAHPS) survey tailored to the current surgical context, this research seeks to delineate how interaction at each phase influences patient perceptions. The findings are anticipated to guide interventions enhancing surgical

team communication, ultimately improving patient-centred care in cholecystectomy and similar clinical environments.

METHODOLOGY

A cross-sectional study was conducted in the Department of Surgery, QHAMC Nowshera, KP. Patients were consecutively enrolled in single hospital sites from July to October 2024. A sample size of 102 was calculated by the "WHO sample size calculator" (version 2.0) using a confidence level of 95%, with an anticipated population proportion of 93% and 5% of absolute precision.[7] Informed consent was taken from participating patients. We got approval from the institutional review board. Our inclusion criteria were 18 years or older patients diagnosed with gallbladder disease upon ultrasound findings by the expert(s). Patients who were unable or refused to complete the questionnaire were excluded. The questionnaire had two parts: the first focused on the patient's demographics, including age, sex, and occupation. While the second part was devised from the CG-CAHPS Adult Visit Survey. Nine questions were asked from the patients about their experience and perception of the healthcare facility. Four questions were asked (Nominal, Q1-4) about patient interaction with HCW at different stages of perioperative care, with Yes/No options. The following four questions (Ordinal, Q5-8) collected information related to patients' satisfaction while interacting with HCWs or facilities. The ninth question asked about the patient's overall satisfaction with the HCW or facility.

The data analysis was done using SPSS v. 22. Through the Shapiro-Wilk test, preliminary assessments revealed that the data violated assumptions of normality. The Mann-Whitney U test was used to assess significant differences between binary nominal and ordinal variables (Gender, Q1-4 and Q5-8 of Table 2), respectively, including overall patient health rating, patient engagement with HCWs, satisfaction with surgical care, and communication quality with HCWs, for categorical independent variables with multiple groups (age group, employment status), associations with ordinal outcomes were analysed using the Kruskal-Wallis H test. A p-value threshold of <0.05 was applied to determine statistical significance.

RESULT

A total of 102 patients were recruited into the study, having a mean age of 44.0±11.84 years, among whom males were 33(32.4%) and females were 69(67.6%). Most patients were from the age group of 45 to 54 years, i.e., 28(27.5%) and employed, i.e., 44(43.1%), Table-1. Moreover, most patients rated their overall health as excellent 38(37.3%), Figure-1.

Table-1: Demographic frequencies of the participants (n=102)

Variable		Frequencies)	Percentages
Gender	Male	69	67.6
	Female	33	32.4
Age Group (years)	35 to 44	26	25.5
	45–54	28	27.5
	55–64	26	25.5
	65–74	16	15.7
	≥75r	6	5.9
Employment status	Employed	44	43.1
	Retired	25	24.5
	Unemployed	33	32.4

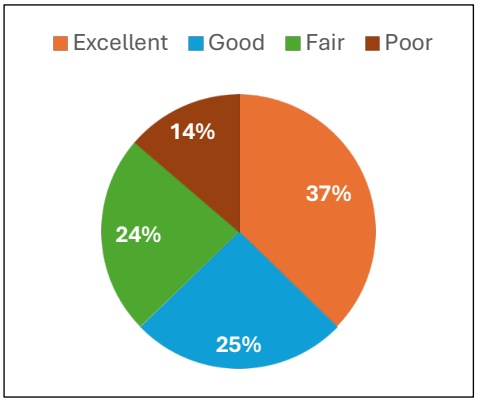

Figure-1: Overall health rating of the participants (n=102)

Most patients reported effective communication, 93(91.2%), and support, 92(90.2%), from the surgical team before and during the procedure, though post-surgery explanations and follow-up, 82(80.4%), showed room for improvement. Patients were extensively engaged 33(32.4%) throughout the experiences of undergoing the surgical procedure, and overall satisfaction with the healthcare facility of surgery was high, with 53(52.0%) satisfied versus 13(12.7%) very dissatisfied. Moreover, patients rated the HCWs' behaviour and communication as very good, 48(47.1%) and 49(48.0%), respectively, Table-2.

Mann-Whitney U tests indicated statistically insignificant differences between male and female patients in their rating of the HCWs' encounters (frequency, behaviour, communication, overall health, or satisfaction with surgeons as $p>0.05$ for all comparisons). Whereas HCW encounters with patients revealed statistically significant differences between patients who reported effective pre- and pari-surgical communication by the surgeon's team (yes group) and those who did not (No group) across all ordinal outcomes ($p<0.05$). Patients in the NO group consistently rated their experiences lower than those in the Yes group. Table-3.

Table-2: Frequencies and percentages of the questions used in the study

Q. No	Questions	Frequency	Percent
1	**Before surgery, did the surgeon's team effectively communicate essential information, provide clear preparation instructions, and listen to your concerns?**		
	Yes	93	91.2
	No	9	8.8
2	**Did your surgeon keep you well-informed during your surgery phase and help you feel at ease?**		
	Yes	92	90.2
	No	10	9.8
3	**Did the anaesthesiologist clearly explain the anaesthesia process, answer your questions, and make you feel comfortable?**		
	Yes	89	87.3
	No	13	12.7
4	**After your surgery, did your surgeon and their team adequately explain recovery expectations, follow up on your care, and address your concerns?**		
	Yes	82	80.4
	No	20	19.6
5	**How would you rate the overall frequency of your encounters with HCWs?**		
	Minimal Engagement	9	8.8
	Limited Engagement	10	9.8
	Moderate Engagement	13	12.7
	Regular Engagement	20	19.6
	Frequent Engagement	17	16.7
	Extensive Engagement	33	32.4
6	**Overall, how satisfied are you with the care provided during the surgical procedure?**		
	Very Satisfied	29	28.4
	Satisfied	53	52.0
	Dissatisfied	7	6.9
	Very dissatisfied	13	12.7
7	**How would you rate the overall behaviours of the HCWs during your encounter(s)?**		
	Very Good	48	47.1
	Good	34	33.3
	Average	9	8.8
	Bad	8	7.8
	Very Bad	3	2.9
8	**How would you rate the overall communication of the HCWs?**		
	Very Good	49	48.0
	Good	35	34.3
	Average	6	5.9
	Bad	6	5.9
	Very Bad	6	5.9
	Total	102	100.0

The Kruskal-Wallis test revealed significant differences in overall health ratings across age groups, H(4)=12.09, p=0.017, and in the frequency of patients encountering HCW, H(4)=9.91, p=0.42. Similarly, overall health rating, frequency of encounter with, and behaviour of HCWs resulted in significant differences across employment status, H(2)=11.01, p=0.004, H(2)=11.10, p=0.004 and H(2)=9.53, p=0.009, respectively, Table-4.

Table-3: Mann-Whitney U test results across grouping variables

			Overall health rating				Frequency of encounters with HCWs				Behaviour of HCWs				Communication of HCWs			
Ordinal Variable		N	Median (IQR)	95% CI Min-Max	U	*P*	Median (IQR)	95% CI Min-Max	U	*p*	Median (IQR)	95% CI Min-Max	U	*p*	Median (IQR)	95% CI Min-Max	U	*P*
Gender	Male	33	2 (2)	1.8–2.6	1109	0.828	4 (3.5)	3.5–4.8	1123	0.978	1 (2)	1.5–2.4	1135	0.978	1 (1)	1.4–2.4	1085	0.681
	Female	69	2 (2)	1.9–2.4			4 (3.0)	3.9–4.5			2 (1)	1.6–2.0			2 (1)	3.9–4.7		
Pre-Surgical	Yes	93	2 (2)	1.9–2.2	60	0.00	5 (2.5)	4.3–4.8	00	0.00	1 (1)	1.5–1.8	31	0.00	1 (1)	1.5–1.8	37	0.00
	No	9	4 (0.5)	3.4–4.1			--	--			4 (2)	3.3–4.7			5 (1.5)	3.4–5.2		
Surgery Phase	Yes	92	2 (2)	1.8–2.2	115	0.00	5 (2)	4.1–4.8	90	0.00	1 (1)	1.5–1.9	62.50	0.00	1 (1)	1.5–1.9	70	0.00
	No	10	3.5 (1)	3.1–3.9			--	--			3.5 (1)	3.1–3.9			3.5 (1)	3.1–3.9		
Anaesthesiologist	Yes	89	2 (2)	1.8–2.3	372	0.031	5 (2)	4.0–4.8	247	0.001	1 (1)	1.6–2.1	498	0.383	1 (1)	1.7–2.2	545	0.715
	No	13	3 (1)	2.2–3.2			--	--			2 (0.5)	1.5–2.2			2 (1)	1.4–2.0		
Post-Surgical	Yes	82	2 (2)	1.9–2.4	796	0.833	5 (3)	3.9–4.7	640	0.120	2 (1.2)	1.7–2.2	690	0.238	2 (1)	1.7–2.2	710	0.314
	No	20	2 (2)	1.6–2.5			--	--			1.5 (1)	1.3–1.7			1.5 (1)	1.3–1.7		

Table-4: Kruskal-Wallis Test of multivariate ordinal variables.

			Overall health rating			Frequency of encounters with HCWs			Behavior of HCWs			Communication of HCWs		
Ordinal Variable		N	Mean Rank	*H*	*p*	Mean Rank	*H*	*p*	Mean Rank	*H*	*p*	Mean Rank	*H*	*P*
Age group	35–44	26	46.1	12.09	0.017	54.8	9.91	0.042	48.6	6.82	0.146	49.6	7.18	0.127
	45–54	28	51.1			50.6			55.8			55.8		
	55–64	26	46.0			54.1			48.1			46.7		
	65–74	15	73.4			34.6			61.7			62.1		
	≥75	6	45.0			74.6			31.3			32.0		
Employment status	Employed	44	40.9	11.01	0.004	61.8	11.10	0.004	43.1	9.53	0.009	43.7	8.07	0.18
	Retired	25	61.4			48.6			51.6			52.1		
	Unemployed	33	58.1			40.0			62.6			61.5		

DISCUSSION

This study demonstrated a significant association between perioperative quality-interaction and patient satisfaction among laparoscopic cholecystectomy patients at QHAMC. The overall rating of the patients about their health revealed a mixed perception, yet most of them rated 'excellent', i.e., 37%. These findings align with prior research linking effective provider communication to improved patient satisfaction in surgical settings.[8] While pre-operative and intraoperative communication received a high satisfaction rating (91.2%–87.3%), postoperative explanations (80.4%) revealed gaps, suggesting areas for improvement, as care is often deprioritised due to systemic constraints.

A significant number of patients, i.e., 91.2%, affirmed that the surgical team effectively communicated pre-operative information. This aligns with evidence that structured pre-operative counselling reduces anxiety and enhances compliance.[9] However, the 8.8% who reported inadequate communication (n=9), their experiences rated significantly lower across all ordinal outcomes. This dichotomy suggests that while pre-operative communication is largely successful, even small oversight can detrimentally impact satisfaction, particularly in settings like Pakistan, where delayed presentations amplify patients' vulnerability.[10] Standardising pre-operative checklists could mitigate such risks.

During surgery, 92.2% felt well-informed by the surgeons, and 87.3% praised the anaesthesiologists' interaction. However, 12.7% dissatisfied with anaesthesia explanations reported poorer HCW behaviour and communication ratings, though these differences were non-significant. This contrasts with the studies emphasising anaesthesia communication as pivotal for trust-building.[11] The non-significance here may reflect small subgroup sizes of cultural factors where patients hesitate to critique authority figures.[12]

Only 80.4% of the patients felt adequately informed post-surgery. This aligns with global trends where postoperative care is fragmented.[13] Notably, the 'no' group (n=20) rated HCW behaviour and communication lower, though differences were non-significant (p>0.05). This suggests systemic issues, such as understaffing or time constraints, rather than individual shortcomings. Implementing structured discharge protocols could bridge this gap.[14]

Contrary to studies highlighting gender disparities in surgical care[15], this study found no significant differences between male and female patients. This may reflect gender-neutral communication protocols or cultural norms where Pakistani patients prioritise respect for HCWs over gendered critiques. Further qualitative research is needed to explore this paradox.

Age and employment status significantly influenced satisfaction. Older patients (45–54 years) and employed individuals reported higher satisfaction with p=0.004. Conversely, unemployed patients rated encounters lower, mirroring socioeconomic disparities in healthcare access.[16] Retired individuals, despite their age, reported moderate satisfaction (mean rank 61.4), suggesting that financial security or health literacy may buffer communication challenges. These findings advocate for targeted support for vulnerable groups, such as unemployed patients, who constituted 32.4% of the sample.

While our cross-sectional design and reliance on self-reported data limit causal conclusions and introduce recall bias, applying robust nonparametric analyses ensured insights despite non-normal distribution. Future longitudinal studies with embedded qualitative interviews would better elucidate satisfaction trends and explain why some patients experience less satisfaction after surgery. To address the identified gaps, we recommend standardising postoperative follow-up through post-discharge calls or digital reminders, training HCWs in empathetic, culturally sensitive communication, and implementing tailored strategies for younger and unemployed patients. Moreover, the modified CG-CAHPS shall be checked for item analysis, and a tailored tool shall be designed to monitor and enhance patient satisfaction continuously.

CONCLUSION

This study highlights the important relationship between perioperative quality-interaction and patient satisfaction in laparoscopic cholecystectomy. While pre- and intra-operative communication excels, postoperative follow-up and HCW soft skills require refinement. Our setups can align their practices with global patient-centred care standards by addressing demographic disparities and systemic gaps.

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