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FACTORS INFLUENCING PATIENT DECISIONS IN LAPAROSCOPIC CHOLECYSTECTOMY: AN ANALYSIS OF NON-ADHERENCE TO DIAGNOSIS AND TREATMENT RECOMMENDATIONS

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Abstract: Laparoscopic cholecystectomy (LC) is the gold standard for treating gallbladder diseases, including symptomatic cholelithiasis and cholecystitis. Despite its proven advantages, a substantial proportion of patients diagnosed with gallbladder disease fail to proceed with LC at the same facility, delay surgery, or opt out entirely. A prospective mixed-methods study was conducted at Healthworld Hospitals, Durgapur, from 1st–15th February 2025, using structured quantitative surveys (n=10) and semi-structured qualitative interviews (n=10). Financial constraints (45%) and fear of surgery (35%) were the leading barriers to LC adherence; 50% of patients proceeded with surgery, 30% delayed, and 20% opted out entirely. Patient-provider trust emerged as a primary enabler of adherence. Targeted interventions including financial counselling, pre-surgical patient education, and streamlined logistical processes are essential to improving surgical uptake and outcomes.

Index Terms: Laparoscopic cholecystectomy, patient non-adherence, gallbladder disease, financial barriers, fear of surgery, treatment compliance, hospital administration.

I. INTRODUCTION

Laparoscopic cholecystectomy (LC) has revolutionized the surgical management of gallbladder diseases since its widespread adoption in the early 1990s. Recognized globally as the gold standard for treating symptomatic cholelithiasis and cholecystitis, LC offers substantial advantages over conventional open cholecystectomy, including reduced postoperative pain, shorter hospital stays, faster convalescence, and superior cosmetic outcomes [1,2].

Despite these well-documented advantages, a significant proportion of patients diagnosed with gallbladder disease in secondary and tertiary care settings do not proceed with LC at the diagnosing institution, defer surgery indefinitely, or decline operative intervention altogether. This pattern of non-adherence constitutes a major clinical and administrative challenge, as untreated symptomatic gallbladder disease is associated with disease progression, acute complications such as cholecystitis and pancreatitis, and escalating healthcare costs [3,4].

The factors driving patient non-adherence are heterogeneous and multifactorial. Financial constraints remain a predominant barrier in lower- and middle-income settings, where out-of-pocket costs and insufficient insurance coverage limit surgical access [5]. Psychological deterrents—including fear of anaesthesia, anticipation of perioperative pain, and generalised surgical anxiety—further erode patient confidence [6]. Sociocultural variables, including reliance on alternative medicine, family influence on medical decisions, and low health literacy, also contribute meaningfully to treatment deferral [7].

From a hospital administration perspective, patient non-adherence carries dual consequences: it compromises individual patient welfare while simultaneously diminishing institutional efficiency through suboptimal resource utilization and reduced procedural throughput. This study was conducted at Healthworld Hospitals, Durgapur—a 300-bedded NABH-accredited tertiary care institution in Paschim Bardhaman, West Bengal, India—and aims to identify the primary reasons for non-adherence to LC, examine the socioeconomic and psychological determinants, and propose actionable, evidence-informed recommendations.

II. REVIEW OF LITERATURE

The clinical evidence strongly supports LC as the definitive treatment for symptomatic gallbladder disease. Keus et al. [2] demonstrated in a Cochrane systematic review that LC was associated with significantly fewer wound complications, shorter convalescence, and better quality of life compared to the open approach. Vaughan et al. [3] established that same-day and short-stay discharge protocols for LC are safe and feasible. Calland and Adams [8] reported an increase in same-day discharge from 21% to 72% following implementation of a structured LC clinical pathway, with no increase in complications. Topal and Penninckx [9] similarly demonstrated a 40.5% reduction in hospital costs without compromising patient safety.

Patient non-adherence to surgical recommendations remains poorly characterised in the literature. Riall et al. [10] demonstrated that failure to perform cholecystectomy in elderly patients was associated with significantly higher morbidity, mortality, and healthcare costs. Wiggins et al. [5] identified significant disparities in LC access among low-income populations, with financial hardship, inadequate insurance, and limited transportation as key structural barriers. Al-Mansour et al. [6] found that fear of anaesthesia and intraoperative complications was a major independent determinant of patient refusal in elective surgical settings. Lyu et al. [7] reported that patient preferences for non-surgical management were common in populations with lower health literacy.

Choucair et al. [12] examined the role of electronic patient-reported outcomes in enhancing surgical communication for LC patients, identifying surgeon communication skills, nursing care standards, and hospital environment as key patient-valued domains. Collectively, the literature reveals a significant research gap: while clinical and technical dimensions of LC are thoroughly explored, the composite socioeconomic, psychological, and institutional barriers to LC adherence in Indian tertiary care settings remain under-investigated. This study addresses that gap.

III. OBJECTIVES

The objectives of this study were: (i) to identify the specific reasons why patients diagnosed with gallbladder disease do not proceed with LC at the diagnosing facility; (ii) to examine the socioeconomic and psychological factors influencing patient decisions; (iii) to analyse the distribution of patient decisions (proceed, delay, opt out) and their associated determinants; and (iv) to propose actionable, evidence-based recommendations to improve patient adherence to LC recommendations.

IV. MATERIALS AND METHODS

4.1 Study Design and Setting

This study employed a prospective, mixed-methods design integrating structured quantitative surveys and semi-structured qualitative interviews. The study was conducted in the General Surgery / Gastroenterology OPD of Healthworld Hospitals, Durgapur (a NABH-accredited 300-bedded tertiary care facility affiliated to Parasmani Medical Centre Private Limited), West Bengal, India. Data collection was conducted from 1st February 2025 to 15th February 2025.

4.2 Target Population and Sampling

The target population comprised patients attending the GI / General Surgery OPD who had received a diagnosis of gallbladder disease (cholelithiasis or cholecystitis) but had not undergone LC at Healthworld Hospitals. A convenience sampling approach was adopted for the pilot study phase.

Inclusion Criteria: Adults (age ≥18 years) diagnosed with gallbladder disease; patients who sought initial consultation but did not return for surgical scheduling; patients recommended elective LC who deferred or declined.

Exclusion Criteria: Patients who had completed LC at the diagnosing hospital; patients requiring emergency cholecystectomy; patients unable to provide informed consent.

4.3 Data Collection Instruments

Quantitative data were collected through a structured survey instrument capturing patient demographics (age, gender), financial status, psychological factors (fear of surgery), and treatment decision (proceed/delay/opt out). Qualitative data were obtained through semi-structured in-depth interviews exploring key themes: financial constraints, fear of surgery, trust in healthcare providers, preference for alternative treatments, and pursuit of second opinions. Interviews were audio-recorded with participant consent and transcribed verbatim.

4.4 Data Analysis

Quantitative data were analysed using descriptive statistics (frequencies, percentages). Qualitative interview data were analysed using inductive thematic analysis, with codes developed iteratively from the data and organised into overarching themes. Methodological triangulation across both data types was employed to enhance validity.

4.5 Ethical Considerations

Informed consent was obtained from all participants prior to enrolment. Participant confidentiality was maintained through anonymisation. The study was conducted in accordance with ethical principles consistent with the Declaration of Helsinki.

V. RESULTS

5.1 Participant Characteristics

Ten patients were enrolled in each arm of the study (quantitative survey and qualitative interview), totalling 20 participants across both methods (with overlap in participants). Ages ranged from 35 to 62 years (mean ≈ 49.2 years). The sample comprised six females and four males. Insurance coverage was present in 60% of participants; 40% had no insurance.

5.2 Reasons for Non-Adherence to LC

Table 1 summarises the distribution of reasons for non-adherence identified through the quantitative survey. Financial constraints were the predominant barrier (45%), encompassing high out-of-pocket surgical costs, absent or inadequate insurance, and inability to afford post-operative recovery time. Fear of surgery was the second most common barrier (35%), encompassing fear of anaesthesia, anticipated perioperative pain, and concern about complications. Fifteen percent of patients perceived their symptoms as insufficiently severe to warrant surgery, while 5% were actively pursuing alternative therapies.

Table 1: Percentage Distribution of Reasons for Non-Adherence to Laparoscopic Cholecystectomy

Reason for Non-Adherence	Percentage of Patients (%)
Financial Constraints	45
Fear of Surgery	35
Perceived Lack of Clinical Urgency	15
Preference for Alternative Treatments	5

5.3 Distribution of Patient Decisions

Table 2 presents the distribution of patient decisions regarding LC. Half of surveyed patients (50%) ultimately agreed to proceed with LC at the diagnosing facility; these patients characteristically reported high trust in their surgeon and adequate insurance coverage. Thirty percent delayed surgery, predominantly citing financial concerns or unresolved anxiety. Twenty percent opted out entirely, with fear of surgery and preference for alternative treatments as the primary drivers.

Table 2: Distribution of Patient Decisions Regarding Laparoscopic Cholecystectomy

Patient Decision	Percentage (%)
Proceed with LC at same facility	50
Delay Surgery	30
Opt Out of LC	20

5.4 Qualitative Findings

Thematic analysis of interview transcripts yielded four primary themes:

Theme 1 – Financial Hardship as a Structural Barrier: Patients without insurance or with limited financial resources consistently identified cost as a decisive barrier, describing inability to afford surgery combined with fear of complications.

Theme 2 – Surgical Fear and Anaesthetic Anxiety: Fear of surgical risk was pervasive among patients who delayed or opted out. Several patients expressed preference for herbal remedies to avoid perceived operative danger; fear was amplified by limited knowledge of the LC procedure.

Theme 3 – Trust as an Enabler of Adherence: Patients who proceeded with LC consistently expressed confidence in their surgeon and hospital. Representative responses affirmed that trust in the doctor and hospital was the determining factor in their decision to proceed.

Theme 4 – Desire for Second Opinion and Information-Seeking: A subset of patients who delayed surgery were not categorically opposed to the procedure but sought independent corroboration of their diagnosis—a potentially recoverable cohort through proactive patient engagement strategies.

VI. DISCUSSION

The findings of this study align with the broader literature on barriers to elective surgical adherence in resource-constrained settings. Financial constraints, identified as the primary barrier in 45% of patients, reflect the structural inadequacies of health insurance penetration in India, where out-of-pocket expenditure constitutes a significant proportion of total healthcare spending. This is consistent with Wiggins et al. [5] and supports the case for health system-level interventions to improve financial access to LC.

Fear of surgery as a significant barrier in 35% of patients is consistent with Al-Mansour et al. [6], who identified surgical fear as an independent predictor of elective surgery refusal—often grounded in misinformation or limited health literacy. The qualitative data suggest that direct, empathetic pre-surgical counselling by the surgical team has significant potential to address this barrier. Evidence from Greilsamer and Abet [13] confirms that more reassuring preoperative consultations substantially increase outpatient LC success rates.

The finding that 50% of patients proceeded, while 30% delayed and 20% opted out, highlights the magnitude of the adherence gap. Importantly, patients who proceeded were distinguished not merely by financial adequacy but by trust in the healthcare provider—a modifiable institutional determinant. The preference for alternative treatments (5%) and the pursuit of second opinions reflect an underlying information deficit and the influence of sociocultural norms. From a hospital administration perspective, delayed or foregone LC increases the probability of emergency presentations with acute cholecystitis, gallstone pancreatitis, or common bile duct complications—clinically more complex, costlier to manage, and associated with higher morbidity [10].

VII. RECOMMENDATIONS

7.1 Strengthen Financial Support Systems

Establish dedicated financial counselling units within the OPD to guide patients through insurance options, cost estimation, and available government or hospital subsidy schemes. Develop flexible, no-interest instalment payment plans for surgical packages. Forge partnerships with NGOs and corporate social responsibility programmes to expand charitable care provisions.

7.2 Enhance Pre-Surgical Patient Education

Develop standardised, multilingual patient education materials (pamphlets, videos, digital content) explaining the LC procedure, its benefits, risks, and the consequences of treatment deferral. Conduct structured pre-operative counselling sessions involving the operating surgeon and anaesthesiologist. Deploy patient navigator roles to guide individuals from diagnosis through scheduling, admission, and follow-up.

7.3 Build Institutional Trust

Promote transparency regarding surgeon credentials, outcomes data, and institutional quality metrics. Systematically collect and display patient testimonials and satisfaction data to address fear through social proof. Implement structured shared decision-making tools to empower patients in the surgical planning process.

7.4 Streamline Logistical Processes

Introduce online or phone-based surgical scheduling systems with reduced waiting times to minimise logistical attrition. Provide transportation assistance or telemedicine follow-up options for patients from distant or underserved areas.

7.5 Implement Data-Driven Surveillance

Use electronic health record analytics to identify patients diagnosed with gallbladder disease who do not return for follow-up, enabling proactive outreach. Establish a patient feedback mechanism to continuously monitor barriers to adherence. Develop a predictive model incorporating age, insurance status, symptom severity, and prior consultation patterns to identify patients at high risk of non-adherence.

VIII. LIMITATIONS

This study has several limitations. The pilot sample size (n=10 per arm) is small and limits statistical generalisability; future studies with larger, population-representative samples are warranted. The study was conducted at a single tertiary care institution in urban West Bengal, which may not reflect diverse sociodemographic contexts across India. Self-reported data on financial concerns and surgical fear are subject to social desirability bias. The cross-sectional design precludes causal inference. Findings may not apply to acute or emergency cholecystectomy scenarios.

IX. CONCLUSION

This study demonstrates that patient non-adherence to LC recommendations is driven by a complex convergence of financial constraints, surgical fear, perceived lack of clinical urgency, and preference for alternative therapies. Financial barriers and surgical anxiety together account for 80% of non-adherence. Trust in the healthcare provider emerged as the primary enabler of surgical adherence, identifying the patient–provider relationship as a high-leverage intervention point.

A multifaceted, administrator-driven strategy encompassing financial counselling, structured pre-surgical education, trust-building communication, and data-driven patient surveillance is essential to improving LC uptake. Future research should employ larger, multicentre samples with longitudinal follow-up to validate these findings and evaluate the effectiveness of targeted adherence-enhancement interventions across diverse Indian healthcare settings.

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