

Effect of Preoperative Anxiety on Postoperative Hemodynamics and Recovery in Laparoscopic Cholecystectomy

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ABSTRACT

The present study investigates the impact of preoperative anxiety on postoperative hemodynamics and recovery in patients undergoing laparoscopic cholecystectomy. Preoperative anxiety is a common concern that may have detrimental effects on surgical outcomes and patient well-being. Understanding the relationship between anxiety levels and postoperative parameters is crucial for improving the quality of care provided to surgical patients. A total of 51 patients, including 29 females and 22 males, scheduled for laparoscopic cholecystectomy, participated in the study. Patients were categorized based on their preoperative anxiety levels. The gender distribution showed that females constituted approximately 56.9% of the participants, while males accounted for 43.1%. Preoperative anxiety was assessed using the Generalized Anxiety Disorder 7-item scale (GAD-7). The results revealed that 37.3% of patients experienced preoperative anxiety, with 2.0% categorized as minimal anxiety, 27.5% as mild, 51.0% as moderate, and 19.6% as severe anxiety. The postoperative recovery of patients was evaluated using the Post Anesthesia Discharge Scoring System (PADSS). The analysis demonstrated that 62.7% of patients achieved the necessary discharge score, indicating successful postoperative recovery. An association analysis was conducted to examine the relationship between anxiety levels and both postoperative recovery and hemodynamics. The results showed significant correlations between preoperative anxiety and postoperative recovery ($p = 0.039$) and hemodynamics changes ($p = 0.040$). Patients with lower anxiety levels exhibited same-day recovery with minimal hemodynamic fluctuations, while those with moderate to severe anxiety experienced delayed recovery and greater postoperative hemodynamic changes. The study's findings underscore the critical importance of addressing preoperative anxiety in laparoscopic cholecystectomy patients. By implementing interventions to reduce anxiety levels, healthcare professionals can enhance postoperative outcomes and promote improved patient well-being. Further research should explore additional factors contributing to preoperative anxiety and evaluate the effectiveness of interventions in reducing anxiety levels. By adopting comprehensive strategies to address preoperative anxiety, healthcare providers can optimize patient care and enhance overall surgical outcomes.

Keywords: Preoperative Anxiety, Postoperative Hemodynamics, Laparoscopic Cholecystectomy.

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INTRODUCTION

Patients who are admitted to the hospital for surgery commonly experience preoperative anxiety, which can result in emotional, mental, and physical difficulties. The type of anesthesia, prior surgical experience, personality traits, surgical concerns, and postoperative pain may all contribute to the anxiety and fear experienced by patients. The presence of preoperative anxiety has been associated with hemodynamic disturbances during surgery, higher analgesic requirements, and decreased patient satisfaction in the postoperative period (1).

Anxiety can be described as a state of apprehension, unease or tension that arises from the expectation of possible harm or danger, whether originating from internal or external sources (2) The impact of preoperative anxiety on surgical outcomes is significant. It can result in hypertension, elevated heart rate, and potential bleeding. Moreover, research suggests that a high level of preoperative anxiety is associated with an augmented need for pain relief following the surgery (3).

The anxiety will affect both the surgical procedure and the process of recovery after the operation (4) The prevalence of preoperative anxiety ranges from 11% to 80%, depending on factors such as the type of surgery, patient gender, and prior surgical experience. In children, the incidence of preoperative anxiety is influenced not only by their age but also by parental anxiety, with rates ranging from 16% to 81% in the pediatric population (5).

Several studies conducted across different countries have confirmed the reliability of the GAD-7 Scale in assessing anxiety levels in a primary care setting using a large patient sample. The GAD-7 is a user-friendly, 7-item scale that was developed recently to identify individuals with Generalized Anxiety Disorder (GAD) (6).

GAD-7				
Over the <u>last 2 weeks</u>, how often have you been bothered by the following problems? (Use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

(For office coding: Total Score T ____ = ____ + ____ + ____)

Figure 1: GAD-7 Scale

The GAD-7, a 7-item scale, assesses anxiety symptoms by patients rating their frequency on a scale of 0 to 4. Scores of 5 to 9, 10 to 14, and 15 to 21 indicate mild, moderate, and severe anxiety. The scale demonstrates high sensitivity (89%) and specificity (82%) for generalized anxiety disorder (GAD) using a threshold of 10. It also shows moderate sensitivity and specificity for panic disorder (74%, 81%), social anxiety disorder (72%, 80%), and post-traumatic stress disorder (66%, 81%). In conclusion, the GAD-7 is an effective tool for screening various anxiety disorders, offering valuable insights for clinical assessment and treatment planning (6).

Around 60% of patients go through a notable level of anxiety before undergoing surgery. Anesthesiologists implemented various strategies, such as preoperative tours, therapeutic nurse-patient interactions, the use of traditional, complementary, or alternative medicine, cognitive behavioral therapy, and referrals to mental healthcare providers, with the aim of minimizing preoperative anxiety. Nonetheless, a number of respondents noted that their practice model precluded anxiety management due to a complete absence of patient interaction before the procedure (7).



Figure 2: Non-Pharmacological Methods for Managing Preoperative Anxiety

The Pharmacological method include giving a single 150 mg dose of oral pregabalin before surgery seems to be an effective method of significantly decreasing patient anxiety, intra operative hemodynamic changes, and postoperative pain (8).

Gallstone disease is common, causing abdominal pain and serious complications. Laparoscopic cholecystectomy (LC) is often preferred over open cholecystectomy (OC) when patients experience gallstone-related symptoms or complications. LC can be performed as an emergency procedure during

acute cholecystitis, cholangitis, or pancreatitis episodes, or delayed until complications subside. Factors like the patient's condition, operating room availability, and referral duration (up to 72 hours) influence the operation timing. LC's benefits, such as minimal invasiveness and faster recovery, make it a widely used approach for managing non-cancerous gallbladder conditions, enhancing patient outcomes and surgical experiences (9).

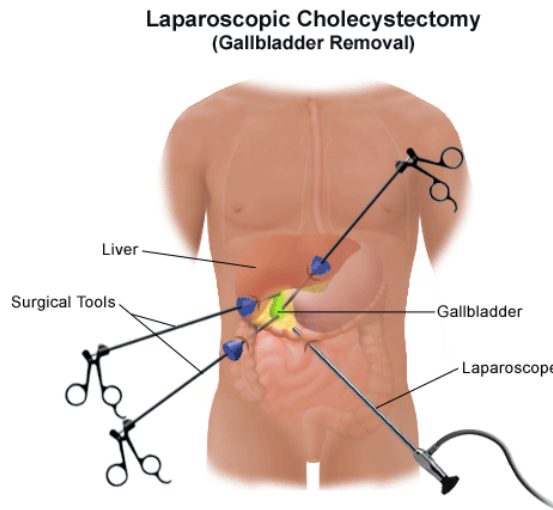


Figure 3

Cholecystitis, which refers to the inflammation of the gallbladder, is a significant global health concern with an increasing prevalence. It affects approximately 10 to 15% of the adult population worldwide. Gallstones are often the underlying cause, and risk factors for cholecystitis include being female, advancing age, family history, obesity, dietary factors, metabolic syndrome, lack of physical activity, and rapid weight loss. The presence of gallstones can cause significant discomfort and severe, unpredictable pain for individuals affected by the condition. Researchers have identified that both the patients' age and their American Society of Anesthesiologists (ASA) classification are significant factors that can predict postoperative pain. Most of the participants in the study reported minimal or no pain and nausea after the surgery, indicating that their pain was effectively managed and preventive measures were implemented to control postoperative nausea and vomiting (PONV). The overall findings suggest that patients had favorable postoperative recovery outcomes in terms of pain and PONV, indicating that individualized premedication was likely provided to most patients. (10).

Laparoscopic cholecystectomy is the preferred method for treating non-cancerous conditions of the gallbladder. It is widely utilized in clinical practice due to its advantages over traditional open surgery, including reduced surgical trauma and faster postoperative recovery (11).

Laparoscopic cholecystectomy, a minimally invasive surgery to remove the gallbladder, has been the preferred method since the early 1990s over the open technique. Indications for this procedure include various conditions like cholecystitis, cholelithiasis, biliary dyskinesia, acalculous cholecystitis, gallstone pancreatitis, and gallbladder masses or polyps (12).

Achieving effective and safe anesthesia is crucial for successful surgical outcomes. Maintaining an optimal level of anesthesia is important, as shallow anesthesia can lead to increased blood pressure, heart rate, and myocardial oxygen consumption. On the other hand, deep anesthesia can result in

postoperative complications such as poor recovery quality and postoperative cognitive dysfunction. Therefore, finding the right balance in anesthesia depth is essential for patient well-being (13).

Due to the rising prevalence of gallbladder stone disease, laparoscopic cholecystectomy has become the favored surgical approach. However, laryngoscopy and peritoneal gas insufflation during this procedure can elicit a hemodynamic stress response and cause pain during and after surgery. To mitigate these effects, the use of multimodal analgesia is recommended. Among the effective components of multimodal analgesia, both intravenous paracetamol and intravenous dexmedetomidine have shown positive outcomes in terms of reducing the stress response and alleviating postoperative pain in laparoscopic cholecystectomy. To decrease these effects, the use of multimodal analgesia is recommended. Among the effective components of multimodal analgesia, both intravenous paracetamol and intravenous dexmedetomidine have shown positive outcomes in terms of reducing the stress response and alleviating postoperative pain in laparoscopic cholecystectomy (14).

The Post-Anesthetic Discharge Scoring System (PADSS)¹ evaluates six factors to find out a patient's readiness for discharge: vital signs (such as blood pressure, pulse, temperature, and respiratory rate), ability to walk, presence of nausea/vomiting, pain level, surgical bleeding, and fluid intake/output. Each reference point is assigned a score ranging from 0 to 2. Patients who achieve a score of 9 or high are deemed suitable for discharge (15).

<i>Parameters</i>	<i>Result</i>	<i>Points</i>
<i>Systolic blood pressure</i>	<i><20% of preoperative value</i>	<i>2</i>
	<i>20-40% of preoperative value</i>	<i>1</i>
	<i>>40% of preoperative value</i>	<i>0</i>
<i>Ambulation</i>	<i>Walking without vertigo possible</i>	<i>2</i>
	<i>Walking with assistance possible</i>	<i>1</i>
	<i>No walking possible, vertigo</i>	<i>0</i>
<i>Nausea, Vomiting</i>	<i>Minor</i>	<i>2</i>
	<i>Moderate</i>	<i>1</i>
	<i>Severe</i>	<i>0</i>
<i>Pain</i>	<i>Minor (VAS 1-2)</i>	<i>2</i>
	<i>Moderate (VAS 3-4)</i>	<i>1</i>
	<i>Severe (VAS >4)</i>	<i>0</i>
<i>Bleeding</i>	<i>Minor</i>	<i>2</i>
	<i>Moderate</i>	<i>1</i>
	<i>Severe</i>	<i>0</i>

Table 1

Statement of Problem

Preoperative anxiety is a common phenomenon that can have negative effects on patient outcomes, including postoperative hemodynamics, postoperative recovery, and pain. The problem addressed in this study is the impact of preoperative anxiety on postoperative hemodynamics and postoperative early recovery in patients undergoing laparoscopic cholecystectomy. Preoperative anxiety can negatively affect the physiological and psychological well-being of patients, leading to adverse outcomes such as effects on hemodynamics, delayed recovery, and prolonged hospital stay. Therefore, it is crucial to understand the relationship between preoperative anxiety and patient outcomes to better the quality of care provided to patients.

LITERATURE REVIEW

In the study conducted in 2014 by Ali et al, included Around 80 patients enrolled in total for laparoscopic cholecystectomy. The patients' demographic details were noted. Patients were given access to Beck's Anxiety Inventory (BAI), with those who were nervous being placed in the high-anxiety patient category (group H) and those who were not worried being placed in the low-anxiety group (group L). The length of the procedure, the length of anesthesia, the time spent being Extubated, and any side effects were noted. Tramadol was utilized as a patient-controlled analgesic during the postoperative phase to manage pain. All patients' visual analogue scale (VAS) ratings and tramadol intake were noted. Preoperative anxiety affected 31 (38.75%) of the total patient population, and a strong association was discovered between the number of days spent in the hospital and the preoperative BAI score (16).

The study is conducted by Jasmina et al, that anxiety affected all of the individuals who were assessed. 4,5% of patients fell into the Spielberg score categories for low, 16,2% for mild, and 60,75% for high levels of preoperative anxiety. Average mean arterial pressure (MAP) readings before surgery and readings at anaesthesia induction were 15,4 mmHg different. There were no statistically significant variations in the heart rate readings between the two measurements. Without past operational expertise, there is a minor propensity for them to experience more preoperative anxiety, although this difference was not statistically significant. The differences in the values of the MAP and the heart rate in both measurements did not significantly correlate with the Spielberg score.

The study by Dheer singh et al, concluded that As oral premedicants, pregabalin and clonidine demonstrated sedative and anxiolytic effects, which reduced the demand for intraoperative analgesic drugs. The hemodynamic reactions to laryngoscopy and laparoscopy were lessened by clonidine than by pregabalin, but it was associated with a higher frequency of intra- and postoperative bradycardia. The parameters of recovery did not significantly differ between the groups. None of the patients who were premedicated experienced any postoperative negative effects (17).

The study of Stergiopoulou et al, indicates that A patient's recovery is impacted by their anxiety related to surgery and anaesthetic. It has been discovered that educating patients about these procedures has a positive impact on their rehabilitation and reduces their anxiety. In our study, the ERAS group that received pertinent information via multimedia about surgical and anaesthetic procedures displayed a notable decrease in anxiety. However, past research found mixed benefits, with some reporting a decrease in anxiety levels and others not. On the other hand, individuals having their third molars out reported feeling more anxious, according to Kazancioglu. This was most likely caused by the fact that the entire surgery was broadcast live, which may have increased anxiety. These inconsistent outcomes so likely imply that preoperative information may be given sparingly rather than in full to reduce fear and anxiety (18).

Objectives:

Objectives of our study are:

1. To determine the relationship between preoperative anxiety levels on postoperative hemodynamics and postoperative recovery in patients undergoing Laparoscopic Cholecystectomy.
2. To identify the factors that contribute to the negative effects of anxiety on these outcomes and suggest interventions to minimize the impact of anxiety on patient outcomes.

METHODOLOGY

Study Design:

Descriptive cross sectional study design will be used.

Study Setting:

Data will be collected from General Hospital Lahore, Punjab.

Data will be collected from Central park Lahore,

Sampling Techniques:

The Purposive sampling techniques was used.

Sample size:

Total of sample of Laparoscopic cholecystectomy patients will be conducted from general hospital Lahore, Central park hospital Lahore

Sample selection criteria:

Inclusion criteria:

- Data of patients aged 18-70 of both genders undergoing Laparoscopy cholecystectomy were used.
- Patients who were capable of understanding and completing the anxiety assessment tools used in the study were used.
- Data of the patients experiencing preoperative anxiety were used.

Exclusion Criteria:

- Laparoscopy cholecystectomy requiring an open (maximum invasive) procedure was excluded.
- Patients who were unable to complete the anxiety assessment scales or understand the instructions due to language barriers or cognitive impairment were excluded.
- Patients with a history of substance abuse or dependence that may affect their response to anxiety management interventions were excluded.

Patient preparation:

To begin with, our first step is to obtain approval from healthcare authorities to gather data through the utilization of the GAD-7 and NRS pain scale. It is essential to acquire patient consent after providing a comprehensive explanation of the procedures involved. The GAD-7 evaluates anxiety levels experienced over a two-week period, comprising seven questions that are rated on a scale of 0 to 3. The NRS pain scale measures the present intensity of pain on a scale ranging from 0 to 10. Our data collection environment prioritizes patient confidentiality, and patients are encouraged to utilize relaxation techniques if required.

Procedure:

We obtained data from patients of various age groups who were scheduled to undergo laparoscopic cholecystectomy at General Hospital Lahore and Central Park Lahore. Prior to the procedure, each patient was requested to complete the GAD-7 questionnaire, which comprises seven questions aimed at assessing the intensity of anxiety experienced over the preceding two weeks. The GAD-7 scale enables us to categorize anxiety levels into four categories: 'slightly anxious,' 'moderately anxious,' 'severely anxious,' and 'extremely anxious.' Additionally, the patients were asked seven questions pertaining to their recent experiences in the past two weeks, to gather additional information about potential triggers or contributors to anxiety. Moreover, we gathered hemodynamic data from each

patient before the laparoscopic cholecystectomy, ensuring that the patients' vital parameters were taken into consideration during our analysis. After the laparoscopy cholecystectomy we checked the post-operative hemodynamics of the patient and we were requested to patient to tell about the different points to evaluate the patient recovery score by using the post anaesthesia discharge scoring system (PADSS). The Post Anesthesia Discharge Scoring System (PADSS) were used to evaluate patients in Phase II. Patients were evaluated on admission, and no less frequently that every 30 minutes until a score of 8 is required for discharge home.

Data collection Tools:

A Performa was used to collect data from patient undergoing Laparoscopy Cholecystectomy, And the Performa will be developed with help of expert opinion.

Generalized Anxiety Disorder 7 (GAD-7):

The GAD-7 scale, also known as the Generalized Anxiety Disorder 7-item scale, is a widely used self-report questionnaire to assess the severity of symptoms related to generalized anxiety disorder (GAD). Consisting of seven questions, the GAD-7 scale measures the frequency and intensity of anxiety symptoms experienced over the past two weeks. Each question on the scale corresponds to a specific anxiety symptom, such as feeling on edge, difficulty managing worry, and restlessness. Respondents rate their experiences on a scale of 0 to 3, with higher scores indicating more severe symptoms. The total score, ranging from 0 to 21, is obtained by summing the scores from each question. Higher scores indicate higher levels of anxiety, while lower scores suggest minimal or no anxiety. The GAD-7 scale is widely used by healthcare professionals and researchers as a quick and reliable screening tool for generalized anxiety disorder. It helps identify individuals who may require further assessment and treatment for anxiety-related issues. The scale is user-friendly and has demonstrated reliability and validity across various demographics. Although the GAD-7 scale is valuable for evaluating anxiety levels in clinical and research settings, it is not a standalone diagnostic tool. If an individual obtains a high score on the GAD-7, further assessment is typically needed to determine whether they meet the criteria for generalized anxiety disorder or another anxiety-related condition. Overall, the GAD-7 scale plays a crucial role in understanding and addressing individual anxiety concerns.

GAD-7				
Over the last 2 weeks , how often have you been bothered by the following problems? <i>(Use "✓" to indicate your answer)</i>	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

(For office coding: Total Score T ___ = ___ + ___ + ___)

Figure 4: GAD-7 Scale

Post Anesthesia Discharge Scoring System (PADSS).

The Post Anesthesia Discharge Scoring System (PADSS) is used to evaluate patients in Phase II. Patients are evaluated on admission, and no less frequently that every 30 minutes until a score of 8 is reached.

Parameters	Result	Points
Systolic blood pressure	<20% of preoperative value	2
	20-40% of preoperative value	1
	>40% of preoperative value	0
Ambulation	Walking without vertigo possible	2
	Walking with assistance possible	1
	No walking possible, vertigo	0
Nausea, Vomiting	Minor	2
	Moderate	1
	Severe	0
Pain	Minor (VAS 1-2)	2
	Moderate (VAS 3-4)	1
	Severe (VAS >4)	0
Bleeding	Minor	2
	Moderate	1
	Severe	0

Table 2: Post Anesthesia Discharge Scoring System (PADSS)

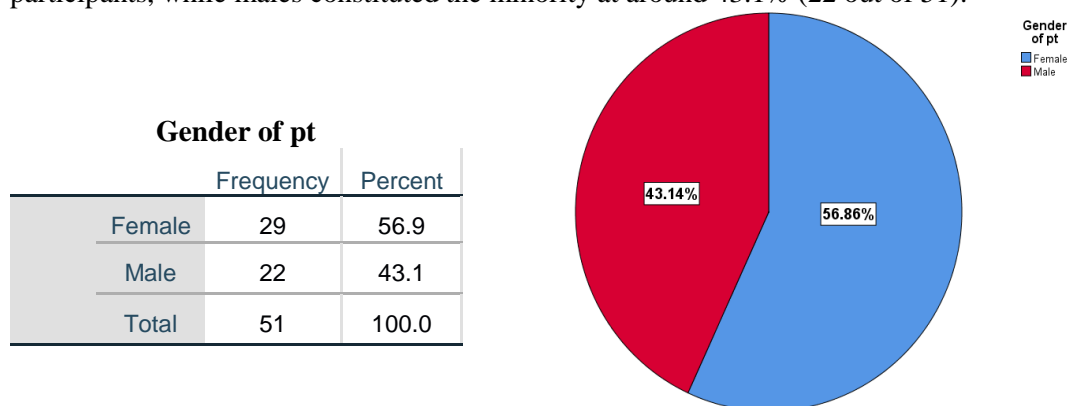
The PADSS score is used to evaluate patients in Phase II who will be discharged home. A PADSS score of 8 is required for discharge home.

Data Analysis:

Data was entered and analyzed by using standard with IBM-SPSS version 23.0 for statistical analysis.

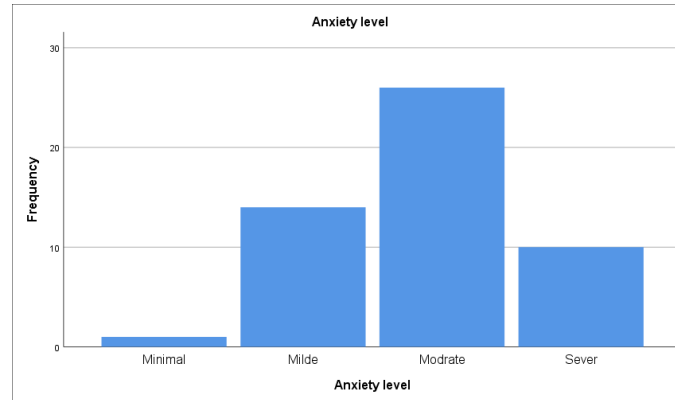
RESULTS:

"A group of 51 patients who were scheduled to undergo laparoscopy cholecystectomy procedures participated in the study, with 29 female and 22 male patients. The selection of these patients was based on their pre operative anxiety and need for Laparoscopy Cholecystectomy procedure. The gender distribution in the study indicates that females accounted for approximately 56.9% (29 out of 51) of the participants, while males constituted the minority at around 43.1% (22 out of 51).



Anxiety Level:

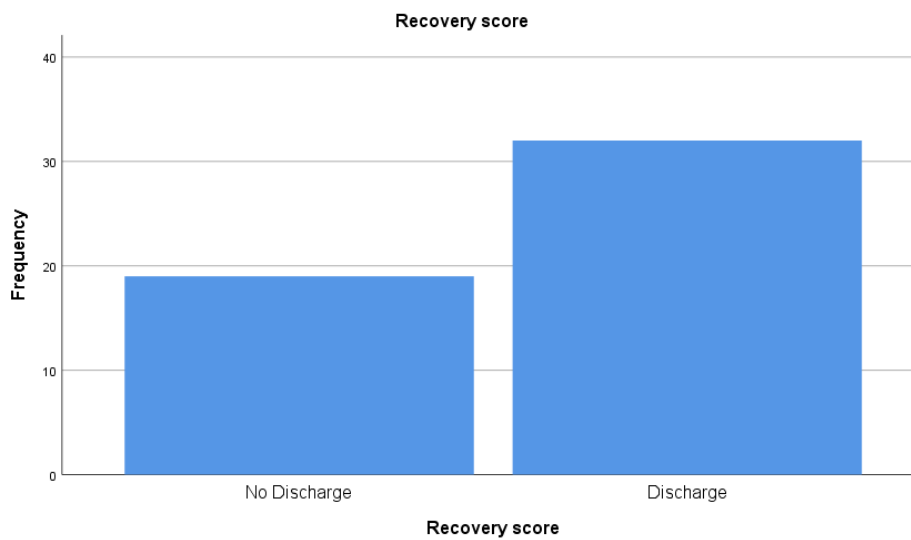
	Frequency	Percent
Minimal	1	2.0
Milde	14	27.5
Modrate	26	51.0
Sever	10	19.6
Total	51	100.0



Recovery Score:

Recovery score

	Frequency	Percent
No Discharge	19	37.3
Discharge	32	62.7
Total	51	100.0



Association between Anxiety(GAD-7 Scale) and Recovery (Post Anaesthesia Discharge Scoring System PADSS):

Anxiety level * Recovery score Cross-tabulation

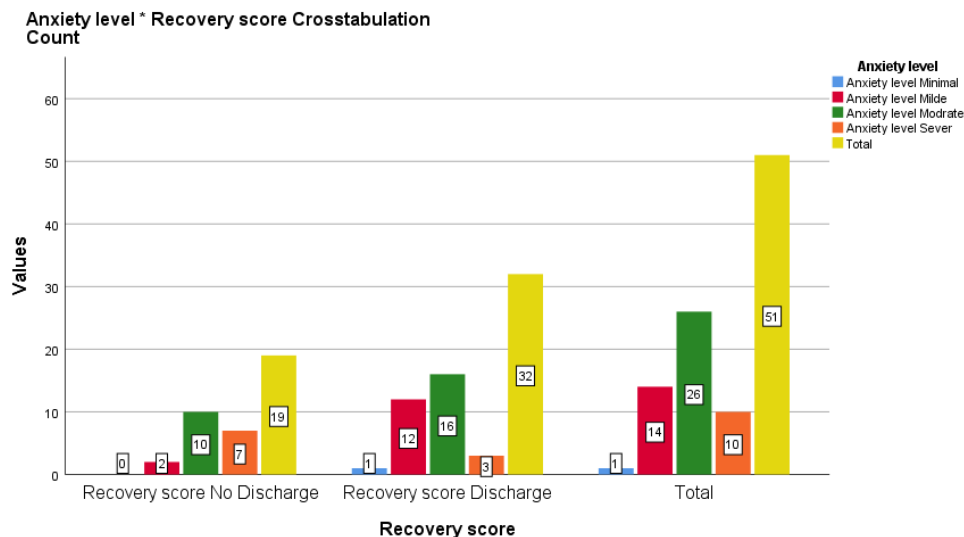
Count

		Recovery score		Total
		No Discharge	Discharge	
Anxiety level	Minimal	0	1	1
	Milde	2	12	14
	Modrate	10	16	26
	Sever	7	3	10
Total		19	32	51

Table

P-Value	0.039
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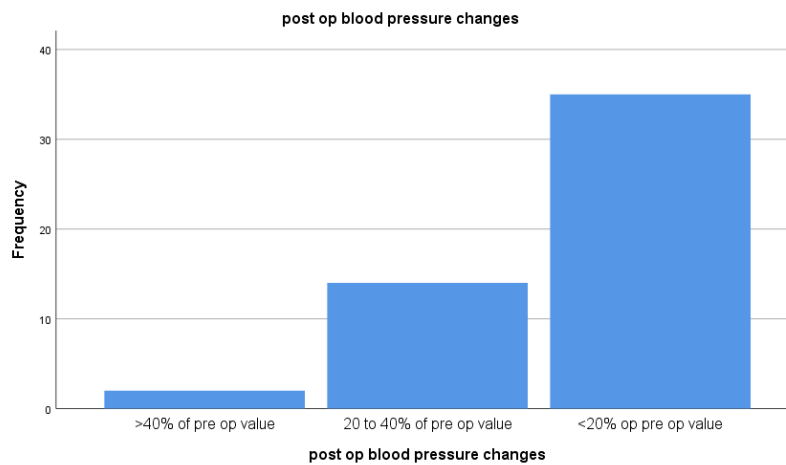
P value is 0.039 shows that there is significant association between anxiety and recovery.



Post op Hemodynamics Changes.

post op blood pressure changes

	Frequency	Percent
>40% of pre op value	2	3.9
20 to 40% of pre op value	14	27.5
<20% op pre op value	35	68.6
Total	51	100.0



Association between anxiety and post op hemodynamics.

Anxiety level * post op blood pressure changes Crosstabulation

Count

		post op blood pressure changes			Total
		>40% of pre op value	20 to 40% of pre op value	<20% op pre op value	
Anxiety level	Minimal	0	1	0	1
	Milde	0	0	14	14
	Modrate	1	8	17	26
	Sever	1	5	4	10
Total		2	14	35	51

P value	0.040
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P value is 0.040 shows that there is significant association between anxiety and post op hemodynamics changes.

RESULTS

Results

Among all patients, 19 (37.3 %) patients effected by preoperative anxiety, and the p-value (0.39), (0.040) association between anxiety level on post op recovery and hemodynamics respectively shows significant correlation was found between the pre op anxiety on post op recovery and hemodynamic. In minor and mild anxiety group recovery happened same day of surgery and there is minimum fluctuation in post op hemodynamics than moderate to sever anxiety group where pre op anxiety effects on recovery and post op hemodynamics.due to which extubation time, the time for the modified altered score to reach 9, was seen as significantly shorter and fewer postoperative side effects were determined.

CONCLUSION

The aim of this research was to investigate the relationship between preoperative anxiety levels, postoperative hemodynamics, and postoperative recovery in patients undergoing Laparoscopic Cholecystectomy. A total of 51 patients, comprising 29 females and 22 males, were included in the study.

The findings of this study revealed significant associations between preoperative anxiety and both postoperative recovery and hemodynamics. Patients with lower levels of preoperative anxiety demonstrated same-day recovery with minimal fluctuations in postoperative hemodynamics. Conversely, patients with moderate to severe anxiety experienced delayed recovery and greater changes in postoperative hemodynamics.

These results emphasize the critical importance of addressing preoperative anxiety in patients undergoing Laparoscopic Cholecystectomy. By implementing interventions to reduce anxiety levels, healthcare professionals have the potential to enhance postoperative outcomes and improve patient well-being.

Healthcare providers need to recognize the impact of preoperative anxiety on postoperative recovery and hemodynamics. By identifying patients with higher levels of anxiety and offering appropriate support and interventions, such as psychological interventions or relaxation techniques, healthcare professionals can mitigate the negative effects of anxiety and promote better surgical outcomes.

Patient Performa

Name: -----

S/O, D/O, W/O: -----

Age: -----

Gender: -----

Date: -----

Contact No: -----

Department: -----

Preoperative vitals Assessment

- a) b. Blood pressure: ____ / mmHg
b) c. Heart rate: _____ bpm
c) d. Oxygen saturation: _____ %
d) e. Respiratory Rate (RR):: _____ /min

Preoperative Anxiety Assessment

- a. Anxiety level (on a scale of 1-10): _____

GAD-7

Our the last 2 weeks how often have bothered by the following problems?	Not at all	Several days	More than half every	Nearly Every day
1. Felling nervous,anxious	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Trouble relaxing	0	1	2	3
4. Worrying to much about different things	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Felling afraid as if something awful might happened	0	1	2	3

Total scoring T _____ = _____ + _____ + _____ + _____

Please circle the number that best describes your feelings about your upcoming laparoscopic cholecystectomy procedure.

1. Not anxious at all
2. Slightly anxious
3. Moderately anxious
4. Very anxious
5. Extremely anxious

Postoperative hemodynamics Assessment

- a. Blood pressure: _____ / mmHg
 b. Heart rate: _____ bpm
 c. Oxygen saturation: _____ %
 e. Respiratory Rate (RR):: _____ /min

Recovery after laparoscopic cholecystectomy

Parameters	Results	points
Systolic blood pressure	<20% of preoperative value	2
	20-40% of preoperative value	1
	>40% of Preoperative value	0
Ambulation	Walking without Dizziness possible	2
	Walking with assistance possible	1
	No walking possible, Dizziness	0
Nausea, Vomiting	Minor	2
	Moderate	1
	Sever	0
Pain	Minor	2
	Moderate	1
	Sever	0
Bleeding	Minor	2
	Moderate	1
	Sever	0

Total score of recovery T= _____

DISCUSSION

The aim of our present study was to investigate the relationship between preoperative anxiety levels, postoperative hemodynamics, and postoperative recovery in patients undergoing Laparoscopic Cholecystectomy. The findings of our study are consistent with previous research conducted by Ali et al. (2014) and Jasmina et al., further supporting the significance of preoperative anxiety in surgical outcomes.

Ali et al. (2014) conducted a study with a sample size of approximately 80 patients undergoing laparoscopic cholecystectomy. They utilized Beck's Anxiety Inventory (BAI) to assess anxiety levels,

categorizing patients into high-anxiety (group H) and low-anxiety (group L) categories. Their study reported a prevalence of 38.75% for preoperative anxiety among patients. This aligns with our findings, which also demonstrated a significant association between preoperative anxiety and postoperative outcomes. Furthermore, Ali et al. observed a strong correlation between the number of days spent in the hospital and the preoperative BAI score, suggesting that higher anxiety levels may contribute to longer hospital stays.

Similarly, Jasmina et al. conducted a study examining anxiety levels in individuals undergoing surgery. They found that anxiety affected all individuals assessed, with 60.75% experiencing high levels of preoperative anxiety. Our study's findings are consistent with their results, emphasizing the impact of preoperative anxiety on surgical patients. Jasmina et al. also reported no statistically significant differences in heart rate readings between preoperative and anesthesia induction measurements, which aligns with our findings indicating that fluctuations in postoperative hemodynamics were more pronounced in patients with moderate to severe anxiety.

By comparing our study to these previous research findings, it becomes evident that preoperative anxiety consistently emerges as a significant factor influencing surgical outcomes. The collective findings underscore the importance of addressing preoperative anxiety in patients undergoing Laparoscopic Cholecystectomy.

Our study contributes to the existing literature by further emphasizing the impact of preoperative anxiety on postoperative recovery and hemodynamics. By implementing interventions aimed at reducing anxiety levels, healthcare professionals have the opportunity to enhance surgical outcomes and promote patient well-being. These interventions may include psychological support, relaxation techniques, and patient education about the surgical procedure and anesthesia.

It is important to note that each study possesses its own unique sample size, study population, and assessment tools. Nevertheless, the consistency in findings across these studies strengthens the validity and generalizability of the results, reinforcing the significance of addressing preoperative anxiety in surgical settings.

Further research should continue to explore additional factors contributing to preoperative anxiety and evaluate the effectiveness of interventions in reducing anxiety levels. By adopting comprehensive strategies to address preoperative anxiety, healthcare providers can optimize patient care, contribute to improved surgical experiences, and ultimately enhance overall surgical outcomes.

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