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Changes in preoperative anxiety after leaflet- and video-based education among patients undergoing laparoscopic cholecystectomy

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Abstract

Background: Preoperative anxiety may affect patients' psychological readiness and perioperative recovery. Structured education using accessible written and audiovisual media may help patients understand the surgical process and reduce uncertainty before laparoscopic cholecystectomy.
Purpose: To examine changes in preoperative anxiety after leaflet- and video-based education among patients undergoing laparoscopic cholecystectomy.
Method: This quasi-experimental study used a one-group pretest–posttest design involving 38 patients at Sari Asih Ciledug Hospital, Tangerang, Indonesia. Participants received a 20-minute educational session using a leaflet and video. Anxiety was assessed before and after the intervention using the Amsterdam Preoperative Anxiety and Information Scale. Pretest and posttest results were compared using the Wilcoxon signed-rank test.
Results: Before education, 18 participants (47.4%) had mild anxiety, 12 (31.6%) had moderate anxiety, 3 (7.9%) had severe anxiety, and 5 (13.2%) had no anxiety. After education, 22 participants (57.9%) had no anxiety, 13 (34.2%) had mild anxiety, 2 (5.3%) had moderate anxiety, and 1 (2.6%) had severe anxiety. Anxiety levels differed significantly between the pretest and posttest assessments ($p < 0.001$).

Keywords: anxiety; laparoscopic cholecystectomy; patient education; preoperative care; video-based education.

INTRODUCTION

Laparoscopic cholecystectomy is a minimally invasive surgical procedure for gallbladder removal and is widely used because it is associated with smaller incisions, less tissue trauma, faster recovery, and shorter hospitalization than open surgery (European Association for the Study of the Liver [EASL], 2016; Ary Wibowo, Tri Joko Putra, Noor Helmi, Poerwosusanta, Kelono Utomo, & Marwan Sikumbang, 2022). Although the procedure is minimally invasive, patients still face uncertainty related to anesthesia, surgical pain, possible complications, and recovery, making psychological preparation an important component of perioperative nursing care.

Preoperative anxiety is a frequent emotional response among patients scheduled for surgery. It may manifest as fear, tension, restlessness, sleep disturbance, increased blood pressure, and concern about anesthesia or surgical outcomes. A systematic review and meta-analysis in low- and middle-income countries reported that preoperative anxiety is common and associated with several patient-related and clinical factors (Bedaso, Mekonnen, & Duko, 2022). Risk factors reported across surgical populations include sex, age, previous surgery, educational background, type of surgery, source of information, and uncertainty about anesthesia or pain (Eberhart, Aust, Schuster, Sturm, Gehling, Euteneuer, & Rüsch, 2020).

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Unmanaged preoperative anxiety is clinically important because it can influence anesthetic requirements, postoperative pain, patient cooperation, satisfaction, and recovery. A recent systematic review and meta-analysis found that preoperative anxiety was associated with several adverse perioperative outcomes, highlighting the need for structured anxiety-reduction strategies before surgery (Shebl, Toraih, Shebl, Tolba, Ahmed, Banga, Orz, Tammam, Saadalla, Elsayed, Kamal, Abdulla, Eldessouky, Moustafa, Mohamed, & Aiash, 2025).

Patient education is one non-pharmacological intervention that can be provided by nurses before surgery. Educational interventions may reduce anxiety by improving understanding, correcting misconceptions, increasing perceived control, and helping patients anticipate what will happen before, during, and after the procedure. A systematic review reported that preoperative education can reduce anxiety among surgical patients (Alanazi, 2014), while a Cochrane review indicated that psychological preparation may improve several postoperative outcomes, although the certainty of evidence varies across intervention types and surgical contexts (Powell, Scott, Manyande, Bruce, Vögele, Byrne-Davis, Unsworth, Osmer, & Johnston, 2016). A systematic review of abdominal surgery also emphasized that preoperative patient education is relevant to recovery but should be delivered using clear, standardized methods (Brodersen, Wagner, Uzunoglu, & Petersen-Ewert, 2023).

Evidence specific to laparoscopic cholecystectomy supports the potential value of education and nursing preparation. Formal education for patients undergoing laparoscopic cholecystectomy has been evaluated in controlled trials and reviews, although intervention content and outcomes differ across studies (Gurusamy, Vaughan, & Davidson, 2014). Randomized studies have reported that individualized audiovisual education, multimedia education, and preoperative nursing visits can reduce anxiety among patients undergoing laparoscopic cholecystectomy (Toğaç & Yılmaz, 2021; Sadeghi, Salari, & Jalali, 2025; Sadati, Pazouki, Mehdizadeh, Shoar, Tamannaie, & Chaichian, 2013). Indonesian studies have also reported that education delivered through video or other structured media is associated with lower preoperative anxiety in surgical patients (Santoso, & Hardiyani, 2025; Wihartini, 2022).

Anxiety in the perioperative period is commonly assessed using structured instruments. The Amsterdam Preoperative Anxiety and Information Scale (APAIS) was developed by Moerman and colleagues as a six-item instrument to assess anxiety related to anesthesia and surgery as well as the need for information before surgery (Moerman, van Dam, Muller, & Oosting, 1996). The instrument has been translated and validated in several contexts and is frequently used because it is brief and clinically applicable (Berth, Petrowski, & Balck, 2007).

In Indonesia, studies of preoperative anxiety have shown that patients may experience different levels of anxiety before elective surgery and that anxiety can be influenced by demographic and psychosocial characteristics (Ayudita, 2020; Kristanti & Faidah, 2022; Kholiq, 2022; Setyowati & Indawati, 2022). At Sari Asih Ciledug Hospital, Tangerang, 4,976 surgical procedures were recorded from January to December 2024, including 78 laparoscopic cholecystectomy procedures. Preliminary observations among six preoperative patients indicated varying anxiety levels, ranging from no anxiety to severe anxiety. These findings suggest a need for structured preoperative education that is easy to understand and can be delivered consistently by perioperative nurses.

This study aimed to examine changes in preoperative anxiety after leaflet- and video-based education among patients scheduled for laparoscopic cholecystectomy.

RESEARCH METHOD

This study used a quantitative quasi-experimental design with a one-group pretest–posttest approach. The study was conducted at Sari Asih Ciledug Hospital, Tangerang, Indonesia, among patients scheduled for laparoscopic cholecystectomy. The source population comprised patients undergoing laparoscopic cholecystectomy during the study period, and the final sample consisted of 38 participants. The intervention consisted of leaflet- and video-based preoperative education delivered for approximately 20 minutes. The pretest was administered in the inpatient ward one day before

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surgery, before the educational session. The posttest was conducted in the preoperative holding area approximately 30 minutes before the participant entered the operating room. Anxiety was measured using the Amsterdam Preoperative Anxiety and Information Scale (APAIS), which includes items related to anesthesia, surgery, and the need for information. Categorical data were summarized using frequencies and percentages, while age was summarized using the mean, standard deviation, and range. Normality was assessed using the Shapiro–Wilk test, and pretest and posttest anxiety scores were compared using the Wilcoxon signed-rank test. Statistical significance was set at $p < 0.05$. Because the measurements were obtained at different times relative to surgery, time-related changes in anxiety could not be separated from the effect of the educational intervention.

RESEARCH RESULTS

A total of 38 patients scheduled for laparoscopic cholecystectomy were included. Table 1 summarizes the participants' demographic and clinical characteristics.

Table 1. Participant Characteristics (N = 38)

Variable	Results
Age, years, mean ± SD (range)	40.76 ± 9.27 (18–65)
18–39	23 (60.5)
40–59	12 (31.6)
60–65	3 (7.9)
Gender	
Male	17 (44.7)
Female	21 (55.3)
Education level	
Junior secondary school	4 (10.5)
Senior secondary school	11 (28.9)
Associate Degree	14 (36.8)
Bachelor's degree	9 (23.7)
History of previous surgery	
Yes	21 (55.3)
No	17 (44.7)

Most participants were aged 18–39 years (60.5%) and female (55.3%). The most common highest educational attainment was a three-year diploma (36.8%), and more than half of the participants had previous surgical experience (55.3%).

Table 2. Anxiety Levels Before and After Preoperative Education (N = 38)

Anxiety level	Pretest, n (%)	Posttest, n (%)
No anxiety	5 (13.2)	22 (57.9)
Mild anxiety	18 (47.4)	13 (34.2)
Moderate anxiety	12 (31.6)	2 (5.3)
Severe anxiety	3 (7.9)	1 (2.6)

Table 2 shows a shift toward lower anxiety after preoperative education. Before the intervention, most participants had mild or moderate anxiety, whereas after the intervention most participants had no anxiety or mild

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anxiety. The Wilcoxon signed-rank test showed a statistically significant difference between the pretest and posttest anxiety scores ($p < 0.001$).

DISCUSSION

The findings indicate that leaflet- and video-based preoperative education was associated with lower anxiety levels among patients scheduled for laparoscopic cholecystectomy. The proportion of participants with no anxiety increased after education, while the proportions with moderate and severe anxiety decreased. This pattern suggests that structured information may help patients feel more prepared before entering the operating room.

This result is consistent with randomized and quasi-experimental studies showing that preoperative educational interventions can reduce anxiety among laparoscopic cholecystectomy patients (Toğaç & Yılmaz, 2021; Sadeghi et al., 2025; Sadati et al., 2013). The finding also aligns with broader reviews showing that preoperative education and psychological preparation can improve patient readiness and reduce negative emotional responses before surgery (Alanazi, 2014; Powell et al., 2016; Brodersen et al., 2023).

The combination of leaflet and video may have facilitated understanding. Leaflets allow patients to reread key information, whereas video media can present the surgical process more visually and concretely. For patients who are unfamiliar with anesthesia, the operating room, or laparoscopic procedures, combining written and audiovisual information may make the explanation easier to understand and may reduce uncertainty. However, because this study did not include leaflet-only or video-only groups, the separate or combined contribution of each medium cannot be determined. Previous evidence has suggested that multimedia and audiovisual education are useful for reducing anxiety and improving comfort in laparoscopic cholecystectomy patients (Toğaç & Yılmaz, 2021; Sadeghi et al., 2025).

Most participants were aged 18–39 years, and more than half were female. Previous Indonesian studies have reported that preoperative anxiety may vary by demographic and psychosocial factors such as sex, educational background, previous surgical experience, and source of information (Ayudita, 2020; Kholiq, 2022; Setyowati & Indawati, 2022). However, the present study did not test associations between participant characteristics and anxiety outcomes; therefore, these characteristics should be interpreted descriptively rather than as explanatory factors.

In clinical practice, perioperative nurses may use a brief, standardized leaflet- and video-based session to supplement routine preoperative communication. The information should be clear and consistent, and anxiety should be reassessed so that patients with persistent moderate or severe anxiety can receive additional support according to hospital procedures.The findings should be interpreted cautiously because the study used a one-group pretest–posttest design without a control group. The pretest was performed one day before surgery, whereas the posttest was performed approximately 30 minutes before entry into the operating room. Anxiety may change naturally as the time of surgery approaches; therefore, time-related confounding cannot be separated from the educational intervention. Other factors, including routine nursing communication, family support, previous surgical experience, or natural changes in anxiety, may also have influenced the findings. In addition, the study was conducted at a single hospital with a relatively small sample, and complete information on APAIS validity and reliability in the study context was not available in the manuscript. Future research should use controlled or randomized designs, larger samples, standardized educational protocols, and validated Indonesian-language measurement procedures.

CONCLUSION

Preoperative anxiety levels were significantly lower after leaflet- and video-based education among patients undergoing laparoscopic cholecystectomy. However, because the study used a one-group pretest–posttest design without a control group, the findings indicate improvement over time and should not be interpreted as definitive evidence of causality.

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SUGGESTION

Perioperative nurses may consider providing standardized leaflet- and video-based preoperative education as part of routine care for patients undergoing laparoscopic cholecystectomy. Future studies should use a controlled design, larger samples, clearly defined educational procedures, validated APAIS scoring and category thresholds complete reporting of paired score statistics and effect size, and follow-up assessments of postoperative outcomes.

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