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Factors Associated with Preoperative Anxiety

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Abstract

Background: Preoperative anxiety can lead to physiological, psychological, and clinical complications, such as increased stress, heightened pain sensitivity, prolonged recovery time, and a higher risk of postoperative complications. It is therefore essential to prevent anxiety in surgical patients. The objective of this study was to identify factors associated with preoperative anxiety among patients scheduled for surgery. **Methods:** We conducted a cross-sectional study over a three-month period, during which we included 370 patients scheduled for surgical intervention. The Amsterdam Preoperative Anxiety and Information Scale (APAIS) was used to assess preoperative anxiety. Univariate and multivariate logistic regressions were used to identify factors associated with preoperative anxiety (95% CI, alpha = 0.05). **Results:** The mean age of patients was (42.6 ± 17) years, with a male predominance (56.8% vs. 43.2%). The prevalence of preoperative anxiety was 47% (n = 174). No prior exposure to anesthesia (AOR = 2.1; 95% CI: 1.3 - 3.4; p = 0.002), the use of general anesthesia (AOR = 2.9; 95% CI: 2.8 - 3.1; p = 0.002), the complete absence of explanation regarding the surgical indication (AOR = 9.3; 95% CI: 1.3 - 24.4; p = 0.009), and fear of death (AOR = 3.5; 95% CI: 1.2 - 10.6; p = 0.03) significantly increased the risk of preoperative anxiety. **Conclusion:** Developing targeted communication strategies focusing on previous anesthesia experience, the type of anesthesia, the surgical indication, and patients' fears related to death, awakening, and disability could significantly reduce preoperative anxiety.

Keywords

Preoperative Anxiety, Associated Factors, Anesthesia, Amsterdam Preoperative Anxiety and Information Scale

1. Introduction

Preoperative anxiety is an emotional response characterized by excessive apprehension, stress, or fear experienced by patients before undergoing surgery [1]. It may be related to concerns about the surgery itself, the anesthesia, or potential postoperative consequences. This form of anxiety, which is prevalent among surgical patients, can vary in intensity depending on medical history, personality, and cultural context [2] [3].

The clinical consequences of preoperative anxiety are numerous and significant. It is associated with an increased physiological stress response, including hyperactivation of the autonomic nervous system, which can lead to tachycardia, hypertension, and impaired hemodynamic stability [4] [5]. It also increases pain sensitivity, reduces patient satisfaction, and prolongs postoperative recovery time [6]. Furthermore, it may impact patient prognosis, as it has been linked to increased postoperative complications [7].

Epidemiologically, the prevalence of preoperative anxiety varies depending on the region and economic context. Globally, it affects approximately 11% to 80% of patients, depending on the population studied and the measurement tools used [8]. In Africa, this prevalence ranges from 61% to 67% [9] [10] and is often associated with limited access to information, insufficient communication between healthcare professionals and patients, and a lack of psychological resources in hospitals. In Cameroon, preoperative anxiety affects approximately 59% to 68% of patients, although few studies have specifically addressed this issue [11] [12].

In a resource-limited setting such as Cameroon, where access to quality care and accurate information is often restricted across the country, assessing and preventing preoperative anxiety is of paramount importance for both the patient and their prognosis. These factors could help reduce postoperative complications, save hospital resources, and improve patient outcomes. Identifying the factors associated with this anxiety will guide intervention strategies, particularly by strengthening doctor-patient communication and incorporating psychological support approaches. The objective of this study was therefore to identify the factors associated with preoperative anxiety in patients scheduled for surgical intervention.

2. Materials and Methods

2.1. Study Design, Setting, and Period

We conducted a cross-sectional study in the surgical department (including visceral, urological, ophthalmological, ENT, cardiovascular, thoracic, orthopedic, and trauma surgery) of the Douala General Hospital over a three-month period, from October to December 2024.

2.2. Study Population

Our study targeted patients scheduled for elective surgery. From this target population, 370 patients who were hospitalized the day before elective surgery and who consented to participate were included in the study. Unconscious patients

and those admitted for emergency surgery were excluded.

2.3. Data Collection Procedure

After approval of our study by the Ethics Committee of the University of Douala (No. 2123/CEI-Udo) and receipt of administrative authorization (No. 161/AR/MINSANTE/HGD/DM), we visited the surgical and gynecology departments every afternoon, the day before surgeries. Upon arrival, we introduced ourselves to the duty nurses, consulted the surgical schedule displayed in the duty room, listed the admitted patients, and located their rooms. We then visited each room, introduced ourselves to the patient, and presented the topic of our study and its relevance. An information note and an informed consent form were provided to the patient before starting the interview, which was based on a pre-tested and standardized data collection form. The information collected from the patients included sociodemographic characteristics (age, sex, occupational sector, education level), as well as their anesthetic and surgical history. In parallel, the quality of information received during pre-anesthesia and surgical consultations was evaluated using the Likert scale [13] to assess its influence on the level of anxiety. Potential causes of preoperative anxiety were also assessed and measured using the Amsterdam Preoperative Anxiety and Information Scale (APAIS) [14]. The APAIS is a validated self-administered questionnaire specifically designed to assess anxiety related to surgery and anesthesia, as well as the patient's need for information. This tool has demonstrated good internal consistency, satisfactory reliability, and construct validity in various settings. Several studies have validated its use in both high- and low-resource environments, including sub-Saharan Africa, highlighting its adaptability to local cultural and linguistic contexts. In the Cameroonian context, the APAIS is particularly relevant due to its brevity, ease of administration, and its ability to capture both the emotional and informational dimensions of preoperative stress—an essential feature in a healthcare system where time and resources are often limited (**Table 1**), a six-item tool designed to quantify the intensity of worry before surgery.

Table 1. Amsterdam preoperative anxiety and information scale.

Each Item Is Rated on a Scale from 1 (minimum: strong disagreement) to 5 (maximum: total agreement)	
A1	I am concerned about anesthesia.
A2	I keep thinking about anesthesia.
A3	I would like to know as much as possible about anesthesia.
C1	I am concerned about the procedure.
C2	I keep thinking about the procedure.
C3	I would like to know as much as possible about the procedure.
Mean Scores Calculated from the Amsterdam Scale	
A1 + A2	Anxiety related to anesthesia.
C1 + C2	Anxiety related to surgery.
A1 + A2 + C1 +C2	Overall anxiety.
A3 + C3	Desire for information score.

2.4. Ethical Considerations

The study was approved by the Ethics Committee of the University of Douala (No. 2123/CEI-Udo), and research authorization was obtained from the administration of the Douala General Hospital (No. 161/AR/MINSANTE/HGD/DM). The purpose of the study, its relevance, the procedures, and the handling of the collected data were read and clearly explained to the patients who met the inclusion criteria in order to obtain their informed consent. Patients were informed that they could withdraw their consent at any time during the study without affecting the quality of care provided in the hospital departments. Data were collected and stored in accordance with current confidentiality and ethical standards.

2.5. Statistical Analysis

Data were recorded in an Excel spreadsheet and analyzed using R software version 4.4.2 and GraphPad version 8.4.3 for Windows. Qualitative variables were presented as frequency (n) and percentage (%), while quantitative variables were expressed as mean ± standard deviation (SD). Pearson's chi-square test of independence with Fisher's exact correction, as well as univariate and multivariate logistic regression analyses, were performed to identify factors associated with preoperative anxiety. For these tests, the confidence interval was set at 95%, and the margin of error at 5% (results were considered statistically significant if and only if $p < 0.05$).

3. Results

3.1. Prevalence of Preoperative Anxiety in the Study Population

Figure 1 shows the prevalence of preoperative anxiety in our study population (N = 370 patients). Among them, 174 patients (47%) were classified as anxious, while the remaining 196 patients (53%) were classified as non-anxious. This distribution indicates that nearly half of the patients experienced anxiety prior to surgery, highlighting the importance of considering preoperative anxiety as a common concern in our context.

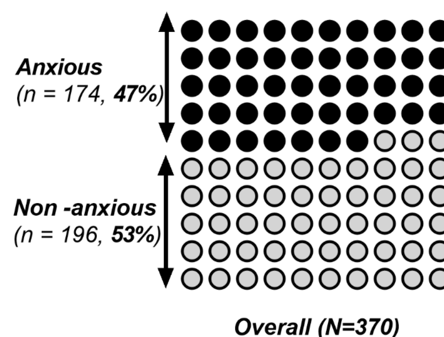

Figure 1. Prevalence of preoperative anxiety.

3.2. Sociodemographic Factors of the Study Population

Table 2 summarizes the distribution of sociodemographic factors in our study

population according to preoperative anxiety status. The mean age was similar between the two groups (42.4 years ± 17 years for anxious patients vs. 41.1 years ± 8 years for non-anxious patients, p = 0.7). Age group distribution did not show any significant differences between the groups (p = 0.2).

Sex was significantly associated with anxiety, with a higher proportion of females in the anxious group (29.7% vs. 27.03%, p = 0.03). Marital status, level of education, and employment sector were not significantly associated with anxiety (p = 0.6, 0.1, and 0.9, respectively).

The majority of participants had a secondary level of education (48.9% in the anxious group vs. 49.0% in the non-anxious group), and the main employment sectors included the private sector and students in both groups.

Table 2. Distribution of sociodemographic factors of the study population based on preoperative anxiety status.

Sociodemographic Factors	Anxious (n = 174)	Non-Anxious (n =196)	p-value
	n (%)	n (%)	
Mean Age (Years)	42.4 ± 17	41.1 ± 08	0.7
Age Groups (Years)			0.2
15 - 30	47 (27.0%)	53 (27.0%)	
31 - 45	56 (32.2%)	64 (32.7%)	
46 - 59	35 (20.1%)	39 (19.9%)	
≥60	36 (20.7%)	40 (20.4%)	
Gender			**0.03***
Female	110 (29.7%)	100(27.03%)	
Male	76 (20.5%)	84 (22.7%)	
Marital Status			0.6
Single	47 (27.0%)	53 (27.0%)	
Married	121 (69.5%)	137 (69.9%)	
Widowed	6 (3.5%)	6 (3.1%)	
Level of Education			0.1
No Schooling	7 (4.0%)	7 (3.6%)	
Primary Education	14 (8.0%)	15 (7.7%)	
Secondary Education	85 (48.9%)	96 (49.0%)	
Higher Education	44 (25.3%)	60 (30.6%)	
Employment Sector			0.9
Public Sector	18 (10.3%)	20 (10.2%)	
Private Sector	41 (23.6%)	46 (23.5%)	
Independent	12 (6.9%)	13 (6.6%)	
Student	31 (17.8%)	35 (17.9%)	
Trader	19 (10.9%)	21 (10.7%)	

Continued

Housewife	27 (15.5%)	31 (15.8%)
Farmer	6 (3.5%)	9 (4.6%)
Retired	18 (10.3%)	22 (11.2%)

The data are presented as frequency (N), percentage (%), and mean ± standard deviation (SD). P-value: The Wilcoxon rank-sum test, Pearson's Chi-squared test, and Fisher's exact test were performed to compare and identify associations between sociodemographic factors and arterial hypertension. For these tests, the confidence interval was set at 95%, and the margin of error at 5% (a p-value is considered significant if and only if $p < 0.05$).

3.3. Factors Associated with Preoperative Anxiety (Univariate Analysis Results)

Female sex (OR = 1.2, p = 0.03), absence of previous anesthesia experience (OR = 2.1, p = 0.002), and general anesthesia (OR = 3.9, $p < 0.001$) were significantly associated with increased preoperative anxiety.

In addition, the absence of explanation regarding the indication for surgery (OR = 9.3, $p < 0.001$) and lack of information about pain management (OR = 1.0, p = 0.02) significantly increased the risk of anxiety.

Among the fears evaluated, fear of death (OR = 26.5, $p < 0.001$), fear of waking up during surgery (OR = 11.9, p = 0.02), fear of postoperative pain (OR = 30.6, $p < 0.001$), and fear of becoming disabled (OR = 5.1, $p < 0.001$) were strongly associated with anxiety.

Finally, fear of the anesthesiologist's experience (OR = 7.6, $p < 0.001$), fear of needles (OR = 4.5, p = 0.001), and fear of feeling pain during surgery (OR = 4.9, $p < 0.001$) were also significant contributing factors (Table 3).

Table 3. Univariate logistic regression analysis of the association between the evaluated factors and preoperative anxiety.

Factors	Modalities	Anxious n (%)	Non-anxious n (%)	COR	95% CI	p-value
Gender	Male	76 (43.7)	84 (42.9)			
	Female	110 (52.3)	100 (47.6)	1.2	0.68 - 1.56	0.03
Previous Anesthesia	Yes	33 (18.9)	65 (33.2)			
	No	140 (80.4)	131 (66.8)	2.1	1.3 - 3.4	0.002
Type of Anesthesia	Locoregional	45 (25.9)	113 (57.7)			
	General	129 (74.1)	82 (41.8)	3.9	2.5 - 6.2	<0.001
I received an explanation about the purpose of the surgery	Sufficiently	71 (40.8)	70 (35.7)			
	Moderately	70 (40.2)	54 (27.5)	1.3	0.8 - 2.0	>0.9
	Slightly	30 (17.2)	43 (21.9)	0.7	0.38 - 1.21	>0.9
	Not at all	29 (14.8)	3 (1.7)	9.3	1.3 - 24.4	<0.001
I received details about the pain management plan	Moderately	27 (15.5)	16 (8.1)			
	Slightly	19 (10.9)	14 (7.1)	0.8	0.31 - 2.0	0.6
	Not at all	180 (91.8)	100 (57.4)	1	0.2 - 0.9	0.02

Continued

Fear of death	No	163 (93.7)	195 (99.4)			
	Yes	164 (94.2)	66 (33.7)	26.5	14.9 - 58.3	<0.001
Fear of waking up during surgery	No	163 (93.7)	195 (99.5)			
	Yes	10 (5.7)	1 (0.5)	11.9	1.51 - 94.4	0.02
Fear of postoperative pain	No	12 (7)	136 (69.4)			
	Yes	162 (93.1)	60 (30.6)	30.6	12.6 - 48.0	<0.001
Fear of becoming disabled	No	143 (82.2)	188 (95.9)			
	Yes	31 (17.81)	8 (4.1)	5.1	2.3 - 11.4	<0.001
Fear of the anesthetist's experience	No	86 (49.4)	172 (87.7)			
	Yes	88 (50.6)	23 (11.7)	7.6	4.5 - 12.9	<0.001
Fear of needles	No	152 (87.3)	189 (96.4)			
	Yes	22 (12.64)	6 (3.0)	4.5	1.8 - 11.5	0.001
Fear of feeling pain during surgery	No	144 (82.7)	188 (95.9)			
	Yes	30 (17.2)	8 (4.1)	4.9	2.2 - 11	<0.001

COR: Crude Odds Ratio; CI: Confidence Interval.

3.4. Factors Associated with Preoperative Anxiety (Multivariate Analysis Results)

Table 4 presents the results of the multivariate analysis aimed at identifying factors associated with preoperative anxiety. The findings show that absence of previous anesthesia experience (AOR = 2.1; 95% CI: 1.3 - 3.4; p = 0.002), use of general anesthesia (AOR = 2.9; 95% CI: 2.8 - 3.1; p = 0.002), complete lack of explanation regarding the indication for surgery (AOR = 9.3; 95% CI: 1.3 - 24.4; p = 0.009), and fear of death (AOR = 3.5; 95% CI: 1.2 - 10.6; p = 0.03) were significantly associated with preoperative anxiety. In contrast, other factors—such as fear of becoming disabled, fear regarding the anesthesiologist's experience, fear of needles, and fear of feeling pain during surgery—did not show a significant association with preoperative anxiety in this multivariate analysis.

Table 4. Multivariate logistic regression analysis of the association between factors significantly associated during univariate analysis and preoperative anxiety.

Factors	Modalities	AOR	95% CI	p-value
Gender	Male	1		
	Female	0.9	0.43 - 2.6	0.1
Previous Anesthesia	Yes	1		
	No	2.1	1.3 - 3.4	**0.002**
Type of Anesthesia	Locoregional	1		
	General	2.9	2.8 - 3.1	**0.002**

Continued

I received an explanation about the purpose of the surgery	Sufficiently	1		
	Moderately	0.87	0.4 - 1.9	0.7
	Slightly	0.7	0.19 - 1.23	0.1
	Not at all	9.3	1.3 - 24.4	**0.009**
Fear of death	No	1		
	Yes	3.5	1.2 - 10.6	**0.03**
Fear of becoming disabled	No	1		
	Yes	0.7	0.9 - 8.1	0.1
Fear of the anesthetist's experience	No	1		
	Yes	1.6	1.1 - 9.8	>0.9
Fear of needles	No	1		
	Yes	1.7	0.3 - 4.1	0.8
Fear of feeling pain during surgery	No	1		
	Yes	1.3	0.5 - 7.2	0.4

AOR: Adjust Odds Ratio; **CI:** Confidence Interval.

4. Discussion

The results of our study show a high prevalence (47%) of preoperative anxiety among patients scheduled for surgery. This prevalence is comparable to that reported in several recent studies, all of which highlight the multifactorial and frequently underestimated nature of this issue [15]. The identification of factors associated with this anxiety—namely the absence of previous anesthesia experience, use of general anesthesia, complete lack of explanation regarding the indication for surgery, and fear of death—allows us to understand several explanatory mechanisms and to consider more targeted prevention and management strategies.

First, the absence of previous anesthesia experience is associated with increased preoperative anxiety. This finding is consistent with recent studies showing that unfamiliarity with the anesthetic process increases fear of the unknown and negative anticipation of complications [16]. Patients with no prior exposure to anesthesia often require clear information tailored to their level of understanding, as well as psychological support to help manage their fears.

Second, the use of general anesthesia appears as a factor significantly associated with preoperative anxiety. Patients often fear not waking up, experiencing pain during the procedure, or losing control of their own bodies [17]. In this context, it would be relevant to assess the impact of an in-depth pre-anesthetic consultation combined with structured preoperative education to reduce these specific concerns. New approaches, such as audiovisual educational tools or mobile apps, have shown promising effectiveness in reducing such anxiety [18].

Third, the complete absence of explanation regarding the surgical indication is

a key factor contributing to anxiety. Poorly informed or uninformed patients tend to overestimate the severity of their condition and surgical risks, leading to heightened emotional stress [19]. Clear, empathetic, and patient-centered communication not only enhances therapeutic adherence but also helps reduce anxiety and improve overall patient satisfaction. Developing personalized preoperative information programs with interactive communication strategies appears particularly beneficial [20].

Finally, fear of death remains a major issue in the emotional experience of patients before surgery. This fear exacerbates anxiety and may lead to longer-term psychological consequences [21]. Implementing psychological support, including short-term therapy or motivational interviewing in the preoperative phase, may help alleviate this distress and improve the patient experience. Additionally, integrating relaxation techniques, meditation, or medical hypnosis into the care pathway offers promising perspectives for managing this type of stress [22].

5. Conclusion

In summary, our results highlight the need to implement targeted assessment and prevention strategies for preoperative anxiety. Interventions based on personalized information, empathetic communication, and psychological support are essential to address fears related to anesthesia and surgical procedures. In the future, the integration of innovative educational protocols, continuous evaluation of the impact of these initiatives on clinical outcomes, and multidisciplinary collaboration (anesthesiologists, surgeons, psychologists, nurses) could significantly reduce preoperative anxiety and improve patient satisfaction, comfort, and postoperative recovery.

Data Availability

The raw data supporting the conclusions of this study will be made available by the authors without undue restriction and upon reasonable request.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

[1] McCleane, G.J. and Cooper, R. (1990) The Nature of Pre-Operative Anxiety. *Anaesthesia*, **45**, 153-155. https://doi.org/10.1111/j.1365-2044.1990.tb14285.x https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2044.1990.tb14285.x

[2] Kim, J., Chiesa, N., Raazi, M. and Wright, K.D. (2019) A Systematic Review of Technology-Based Preoperative Preparation Interventions for Child and Parent Anxiety. *Canadian Journal of Anesthesia/Journal Canadien d'Anesthésie*, **66**, 966-986. https://doi.org/10.1007/s12630-019-01387-8

[3] Yang, K.L., Detroyer, E., Van Grootven, B., Tuand, K., Zhao, D.N., Rex, S., *et al.* (2023)

Association between Preoperative Anxiety and Postoperative Delirium in Older Patients: A Systematic Review and Meta-Analysis. *BMC Geriatrics*, **23**, Article No. 198. https://doi.org/10.1186/s12877-023-03923-0

[4] Stamenkovic, D.M., Rancic, N.K., Latas, M.B., Neskovic, V., Rondovic, G.M., Wu, J.D., *et al.* (2018) Preoperative Anxiety and Implications on Postoperative Recovery: What Can We Do to Change Our History. *Minerva Anestesiologica*, **84**, 1307-1317. https://doi.org/10.23736/s0375-9393.18.12520-x

[5] Dziadzko, M., Mazard, T., Bonhomme, M., Raffin, M., Pradat, P., Forcione, J.M., *et al.* (2022) Preoperative Anxiety in the Surgical Transfer and Waiting Area: A Cross-Sectional Mixed Method Study. *Journal of Clinical Medicine*, **11**, Article 2668. https://doi.org/10.3390/jcm11092668

[6] Levett, D.Z.H., Edwards, M., Grocott, M. and Mythen, M. (2016) Preparing the Patient for Surgery to Improve Outcomes. *Best Practice & Research Clinical Anaesthesiology*, **30**, 145-157. https://doi.org/10.1016/j.bpa.2016.04.002 https://www.sciencedirect.com/science/article/pii/S1521689616300039

[7] Kietaibl, S., Ahmed, A., Afshari, A., Albaladejo, P., Aldecoa, C., Barauskas, G., *et al.* (2023) Management of Severe Peri-Operative Bleeding: Guidelines from the European Society of Anaesthesiology and Intensive Care: Second update 2022. *European Journal of Anaesthesiology*, **40**, 226-304. https://doi.org/10.1097/EJA.0000000000001803

[8] Bedaso, A., Mekonnen, N. and Duko, B. (2022) Prevalence and Factors Associated with Preoperative Anxiety among Patients Undergoing Surgery in Low-Income and Middle-Income Countries: A Systematic Review and Meta-Analysis. *BMJ Open*, **12**, e058187. https://doi.org/10.1136/bmjopen-2021-058187

[9] Fentie, Y., Yetneberk, T. and Gelaw, M. (2022) Preoperative Anxiety and Its Associated Factors among Women Undergoing Elective Caesarean Delivery: A Cross-Sectional Study. *BMC Pregnancy and Childbirth*, **22**, Article No. 648. https://doi.org/10.1186/s12884-022-04979-3

[10] Mulugeta, H., Ayana, M., Sintayehu, M., Dessie, G. and Zewdu, T. (2018) Preoperative Anxiety and Associated Factors among Adult Surgical Patients in Debre Markos and Felege Hiwot Referral Hospitals, Northwest Ethiopia. *BMC Anesthesiology*, **18**, Article No. 155. https://doi.org/10.1186/s12871-018-0619-0

[11] Palle, J.N., Njie, F.E., Chichom, A.M., Esoh, N.B., Eta, V.A., Nana, T., *et al.* (2021) Effects of Pre-Operative Anxiety on the Post-Operative Recovery of Surgical Patients in the Buea Regional Hospital, Cameroon. *Revue de Médecine et de Pharmacie*, **11**, 1147-1153. https://www.ajol.info/index.php/rmp/article/view/214796

[12] Bengono, B.R., Ntone, F., Amengle, A.L., Mendo, E.L., Metogo, M.J.A., Esiene, A., *et al.* (2019) Evaluation et prise en charge de l'anxiété préopératoire chez l'adulte camerounais. *Revue de Médecine et de Pharmacie*, **9**, 1035-1043. https://www.ajol.info/index.php/rmp/article/view/195377

[13] Jebb, A.T., Ng, V. and Tay, L. (2021) A Review of Key Likert Scale Development Advances: 1995-2019. *Frontiers in Psychology*, **12**, Article 637547. https://doi.org/10.3389/fpsyg.2021.637547

[14] Boker, A., Brownell, L. and Donen, N. (2002) The Amsterdam Preoperative Anxiety and Information Scale Provides a Simple and Reliable Measure of Preoperative Anxiety. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*, **49**, 792-798. https://doi.org/10.1007/bf03017410

[15] Viola, C.T., Joselyn, A.S., Sukumar, A. and Sahajanandan, R. (2021) Preoperative Anxiety among Patients Scheduled for Elective Surgical Procedures during the COVID-19 Pan-

demic—A Cross-Sectional Study in a Tertiary Care Teaching Hospital in India. *Indian Journal of Anaesthesia*, **65**, 619-625. https://doi.org/10.4103/ija.ija_594_21

[16] Lee, A., Chui, P.T. and Gin, T. (2003) Educating Patients about Anesthesia: A Systematic Review of Randomized Controlled Trials of Media-Based Interventions. *Anesthesia & Analgesia*, **96**, 1424-1431. https://doi.org/10.1213/01.ane.0000055806.93400.93 https://journals.lww.com/anesthesia-analgesia/fulltext/2003/05000/educating_patients_about_anesthesia__a_systematic.34.aspx

[17] Qu, L., Ma, R., Ma, Y., Zhao, X., Jin, J., Zhu, Q., *et al.* (2024) Influence of Preoperative Comprehensive Education on Anxiety, Depression, Pain, and Sleep in Elderly Patients Operated under General Anesthesia. *World Journal of Psychiatry*, **14**, 1845-1853. https://doi.org/10.5498/wjp.v14.i12.1845

[18] Karimzadeh, Z., Aliakbari, F., Salehi, S. and Raeisi, H. (2023) The Effect of Psychological Intervention Based on the Mobile Application on the Anxiety Level of Cholecystectomy Candidates. *Journal of Multidisciplinary Care*, **12**, 24-30. https://doi.org/10.34172/jmdc.1170 https://jmdc.skums.ac.ir/Article/jmdc-1170

[19] Ali, Z., Ahsan, Z., Liaqat, N. and ud Din, I. (2024) Bridging the Gap: Evaluation of Preoperative Patients' Education by Comparing Expectations and Real-Perioperative Surgical Experiences: A Mixed-Methods Descriptive Cross-Sectional Study. *BMC Health Services Research*, **24**, Article No. 964. https://doi.org/10.1186/s12913-024-11388-z

[20] Wongkietkachorn, A., Wongkietkachorn, N. and Rhunsiri, P. (2017) Preoperative Needs-Based Education to Reduce Anxiety, Increase Satisfaction, and Decrease Time Spent in Day Surgery: A Randomized Controlled Trial. *World Journal of Surgery*, **42**, 666-674. https://doi.org/10.1007/s00268-017-4207-0

[21] Gorsky, K., Black, N.D., Niazi, A., Saripella, A., Englesakis, M., Leroux, T., *et al.* (2021) Psychological Interventions to Reduce Postoperative Pain and Opioid Consumption: A Narrative Review of Literature. *Regional Anesthesia & Pain Medicine*, **46**, 893-903. https://doi.org/10.1136/rapm-2020-102434

[22] Villa, G., Lanini, I., Amass, T., Bocciero, V., Scirè Calabrisotto, C., Chelazzi, C., *et al.* (2020) Effects of Psychological Interventions on Anxiety and Pain in Patients Undergoing Major Elective Abdominal Surgery: A Systematic Review. *Perioperative Medicine*, **9**, Article No. 38. https://doi.org/10.1186/s13741-020-00169-x