

**RESEARCH**

**PREOPERATIVE ANXIETY LEVELS IN ELECTIVE SURGERY PATIENTS
AT PROF DR. I.G.N.G. NGOERAH CENTRAL GENERAL HOSPITAL**

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ABSTRAK

Pendahuluan: Kecemasan pre operasi merupakan permasalahan yang sering dialami oleh pasien yang akan menjalani tindakan pembedahan. Kecemasan pre operasi dapat berpengaruh terhadap kondisi pasien menjelang operasi dan hasil operasi. Tujuan dari penelitian ini adalah untuk menggambarkan tingkat kecemasan pre operasi pada pasien bedah elektif di RSUP Prof. Dr. I.G.N.G. Ngoerah.

Metode: Jenis penelitian ini adalah observasional deskriptif dengan rancangan cross-sectional. Penelitian ini menggunakan data primer dari hasil kuisioner The Amsterdam Preoperative Anxiety and Information Scale dalam mengukur tingkat kecemasan pasien. Pengumpulan data dilakukan dari bulan Februari hingga Maret 2024 di RSUP Prof. Dr. I.G.N.G. Ngoerah dengan menggunakan teknik consecutive sampling.

Hasil: Data yang berhasil dikumpulkan dan dianalisis adalah sebanyak 103 sampel. Hasil penelitian ini adalah sebesar 15% pasien pre operasi tidak mengalami kecemasan, 41.7% pasien mengalami kecemasan ringan, 23.3% mengalami kecemasan sedang, 17.5% mengalami kecemasan berat, dan 1.9% mengalami kecemasan sangat berat/panik.

Pembahasan: Berdasarkan beberapa penelitian sebelumnya, tingkat kecemasan pasien pre operasi ditemukan bervariasi mulai dari kecemasan ringan, sedang, hingga berat. Perbedaan hasil penelitian dapat disebabkan oleh perbedaan instrumen yang digunakan, perbedaan populasi yang diteliti, dan besar sampel penelitian.

Simpulan: Dari hasil secara keseluruhan, dapat disimpulkan tingkat kecemasan pre operasi pada pasien operasi bedah elektif sebagian besar mengalami kecemasan ringan baik berdasarkan usia, jenis kelamin, suku bangsa, tingkat pendidikan, status ekonomi, jenis anestesi, jenis operasi, dan riwayat operasi.

Kata kunci: APAIS, Bedah Elektif, Kecemasan Pre Operasi

ABSTRACT

Introduction: Preoperative anxiety is a common issue experienced by patients scheduled to undergo surgery. This anxiety can affect the patient's condition before surgery and the outcomes of the surgical procedure. This study aims to describe the levels of preoperative anxiety in elective surgery patients at Prof. Dr. I.G.N.G. Ngoerah Central General Hospital.

Method: This study employs a descriptive observational study with a cross-sectional design. Primary data were collected using the Amsterdam Preoperative Anxiety and Information Scale (APAIS) to measure patient anxiety levels. Data was collected from February to March 2024 at Prof. Dr. I.G.N.G. Ngoerah Central General Hospital, utilizing a consecutive sampling technique.

Result: A total of 103 samples were collected and analyzed. The results indicated that 15% of preoperative patients did not experience anxiety, 41.7% experienced mild anxiety, 23.3% experienced moderate anxiety, 17.5% experienced severe anxiety, and 1.9% experienced very severe anxiety or panic.

Discussion: Previous studies have found that preoperative patients' anxiety levels vary from mild to moderate to severe. Variations in the instruments used, differences in the populations studied, and the large sample size could have affected the results of the anxiety levels study.

Conclusion: Overall, the study concludes that patients undergoing elective surgery predominantly experience mild preoperative anxiety, regardless of factors such as age, gender, ethnic group, education level, economic status, type of anesthesia, type of surgery, and surgical history.

Keywords: APAIS, Elective Surgery, Preoperative Anxiety

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BACKGROUND

Surgery is a treatment method using invasive techniques. The purposes of surgery include diagnostic (biopsy, laparotomy, exploration), curative (excision of tumor mass, removal of the appendix), reparative (repairing multiple wounds), reconstructive, and palliative. According to data from the World Health Organization, the number of patients undergoing surgical procedures has significantly increased yearly. Globally, surgical procedures are estimated to reach 165 million annually. In 2020, surgical procedures in Indonesia were recorded at 1.2 million. Based on data from the Indonesian Ministry of Health (2021), surgery ranks 11th out of 50 disease treatments in Indonesia, with 32% being elective surgeries.^[1]

More than two-thirds of patients waiting for surgery experience anxiety. Anxiety can be defined as a psychological condition characterized by fear and worry about future events, whether related to current problems or other concerns.^[2] Preoperative patient anxiety occurs due to the inhibition of neurotransmitters that control neurons in the brain, resulting in the brain's inability to process information correctly.^[3] Neurotransmitters such as norepinephrine, serotonin, dopamine, and gamma-aminobutyric acid (GABA) play a role in the occurrence of anxiety.

Anxiety in preoperative patients can arise due to fear of pain, fear of death if the operation fails, fear when receiving anesthesia, fear of deformity, and other threats to body image.^[4] Anxiety in preoperative patients is generally due to the novelty of the experience, as patients do not know enough about the upcoming operation. A lack of support and attention from the family can also cause feelings of anxiety. This lack of support causes patients to express their anxiety to their family or closest people, so without family support, their fear or anxiety about surgery tends to increase.^[5]

The prevalence of anxiety in preoperative patients undergoing various types of surgery has been reported to range from 60% to 90%.^[2] In a study conducted by Sembiring in 2019, 65% of preoperative patients experienced moderate anxiety.^[6] In a study by Nisa et al. in 2019, 67.1% of respondents experienced moderate anxiety, and 32.9% experienced severe anxiety when undergoing major surgery.^[7] In a study conducted by Nurahayu & Sulastri in 2019, 60% of cataract preoperative patients experienced anxiety, which had an impact on changes in patient vital signs.^[8]

The anxiety levels of each patient vary because they are influenced by several factors, such as gender, age, ethnic group,

education level, surgical experience, anesthesia procedures, type of surgery, and economic status.^[9,10,11] Various validated instruments or questionnaires measure anxiety levels, including the Amsterdam Preoperative Information Scale (APAIS) questionnaire. The APAIS instrument offers several advantages, including its short and simple format, which only requires a little time to complete.^[12]

Preoperative patient anxiety is very noteworthy because it can affect the patient's condition before surgery. Preoperative anxiety can affect the body's physiological functions, such as increased pulse and respiration frequency, changes in blood pressure and temperature, relaxation of smooth muscles in the intestines and bladder, cold and moist skin, dry mouth, and dilated pupils.^[13,14] These conditions are hazardous and can affect the surgical process, often causing doctors to delay or cancel surgery.^[13] Anxiety in preoperative patients can cause several complications, such as prolonged recovery time, delayed wound healing, and the need for larger doses of anesthesia.^[15] Another preoperative complication is the onset of acute pain felt by patients; the higher the level of preoperative anxiety, the higher the analgesic needs of postoperative patients.^[16]

Preoperative anxiety is a common condition. However, it is very important to assess because it can affect the surgical and postoperative periods. Due to the lack of extensive studies on preoperative anxiety in Bali, this research aims to describe the levels of preoperative anxiety in elective surgery patients at Prof. Dr. I.G.N.G. Ngoerah Central General Hospital.

METHODS

This study employs a descriptive observational study with a cross-sectional design. The study material used was primary data derived from questionnaires from The Amsterdam Preoperative Anxiety and Information Scale (APAIS) directly interviewed by researchers with elective surgical preoperative patients at Prof. Dr. I.G.N.G. Ngoerah Central General Hospital. The subjects of this study were patients aged 18-65 years who were scheduled for elective surgery at Prof. Dr. I.G.N.G. Ngoerah Central General Hospital and were willing to participate in this study. This study excludes subjects with psychiatric disorders. This study took place in the inpatient room of Prof. Dr. I.G.N.G. Ngoerah Central General Hospital from February to March 2024. The sample collection technique employed was consecutive sampling with a minimum sample size of 85. The data analysis in this study used descriptive statistical analysis by making

cross-tabulations. The entire data analysis process above uses SPSS version 29.0. This study has obtained a statement of ethical approval from the Ethics Commission of the Faculty of Medicine, Udayana University, with reference number 2726/UN14.2.2.VII.14/LT/2023 and research permission from the Education and Research Section of Prof. Dr. I.G.N.G. Ngoerah Hospital.

RESULTS

Based on the inclusion and exclusion criteria, 103 samples were collected and analyzed. The collected data consisted of several variables, including age, gender, ethnic group, education level, economic status, type of anesthesia, type of surgery, and surgery history. The sample characteristics of this research results are presented in table 1 below.

Table 1. Characteristics of the Sample

Characteristic	Frequency (n=103)	Percentage (%)
Age (Year)		
Early Adulthood (18-40 years old)	36	35.0
Middle Adulthood (41-60 years old)	53	51.5
Late Adulthood (>60 years old)	14	13.6
Gender		
Male	46	44.7
Female	57	55.3
Ethnic Group		
Balinese	70	68.0
Javanese	17	16.5
Non Balinese-Javanese	26	15.5
Educational Level		
Low Education (Elementary School)	24	23.3
Secondary Education (Junior-Senior High School)	53	51.5
High Education (College)	26	25.2
Economic Status		
Low Income (<IDR 1,500,000)	37	35.9
Medium Income (IDR 1,500,000-2,500,000)	21	20.4
High Income (IDR 2,500,000-3,500,000)	19	18.4
Very High Income (>IDR 3,500,000)	26	25.2
Type of Anesthesia		
General	90	87.4

Regional	13	12.6
Type of Surgery		
Oncology Surgery	23	22.3
Orthopedic Surgery	22	21.4
Digestive Surgery	18	17.5
Plastic Surgery	8	7.8
Thoracic and Cardiovascular Surgery	7	6.8
ENT-Head and Neck Surgery	7	6.8
Urology Surgery	7	6.8
Ocular Surgery	5	4.9
Obstetric Gynecologic Surgery	3	2.9
Vascular Surgery	2	1.9
Neurosurgery	1	1.0
History of Surgery		
Yes	58	56.3
No	45	43.7

Based on table 1, most respondents were middle-aged (41-60 years old) at 51.5% and female at 55.3%. The majority of respondents' ethnicity was Balinese, at 68%. Based on educational history, more respondents had moderate education at 51.5%, and most were in the low-income

group at 35.9%. The majority of respondents received general anesthesia, at 87.4%. The most common type of surgery was oncology surgery at 22.3%, and the majority of respondents already had a history of surgery at 56.3%.

Table 2. Overview of Anxiety Levels

Anxiety Levels	Frequency (n=103)	Percentage (%)
No Anxiety	16	15.5
Mild Anxiety	43	41.7
Moderate Anxiety	24	23.3
Severe Anxiety	18	17.5
Very Severe Anxiety/Panic	2	1.9

Based on table 2, the anxiety level of preoperative patients using the APAIS

questionnaire found that most respondents experienced mild anxiety, which amounted to 41.7%.

Table 3. Anxiety Levels Based on Sociodemographic Characteristics

Sociodemographic Characteristics	Anxiety Levels				
	No	Mild	Moderate	Severe	Very Severe
	n (%)	n (%)	n (%)	n (%)	n (%)
Age					
Early Adulthood	3 (8.3)	11 (30.6)	11 (30.6)	10 (27.8)	1 (2.8)
Middle Adulthood	11 (20.8)	24 (45.3)	12 (22.6)	6 (11.3)	0 (0)
Late Adulthood	2 (14.3)	8 (57.1)	1 (7.1)	2 (14.3)	1 (7.1)
Gender					
Male	8 (17.4)	17 (37)	13 (28.3)	8 (17.4)	0 (0)
Female	8 (14)	26 (45.6)	11 (19.3)	10 (17.5)	2 (3.5)
Ethnic Group					
Balinese	9 (12,9)	33 (47,1)	17 (24,3)	11 (15,7)	0 (0)
Javanese	4 (23,5)	6 (35,3)	3 (17,6)	2 (11,8)	2 (11,8)
Non Balinese- Javanese	3 (18,8)	4 (25)	4 (25)	5 (31,3)	0 (0)
Education Level					
Low	8 (33.3)	11 (45.8)	3 (12.5)	0 (0)	2 (8.3)
Secondary	7 (13.2)	25 (47.2)	10 (18.9)	11 (20.8)	0 (0)
High	1 (3.8)	7 (26.9)	11 (42.3)	7 (26.9)	0 (0)

Economic Status					
Low Income	7	19	5	5	1
	(18.9)	(51.4)	(13.5)	(13.5)	(2.7)
Medium Income	4	9	5	2	1
	(19)	(42.9)	(23.8)	(9.5)	(4.8)
High Income	4	5	6	4	0
	(21.1)	(26.3)	(31.6)	(21.1)	(0)
Very High Income	1	10	8	7	0
	(3.8)	(38.5)	(30.8)	(26.9)	(0)

Based on table 3, in early adulthood, most experienced anxiety was evenly distributed between mild and moderate anxiety, at 30.6% and 27.8%, respectively, in severe anxiety. In middle adulthood, most were distributed in mild anxiety, at 45.3%. In late adulthood, more patients experienced mild anxiety, at 57.1%.

In females, the levels of severe and very severe anxiety were higher than in males, with 17.5% experiencing severe anxiety and 3.5% experiencing very severe anxiety. More men had no anxiety and moderate anxiety, at 17.4% and 28.3%, respectively.

More Balinese experienced mild anxiety, at 47.1%. In the Javanese tribe, more experienced severe anxiety/panic, at 11.8%. In the non-Balinese Javanese tribe,

most experienced mild and moderate anxiety, at 25% and 31.3%, respectively.

Low-education group experienced mild anxiety at 45.8%. On the other side, the low education group was found to experience more severe/panic anxiety, at 8.3%. In the moderate education group, 47.2% experienced mild anxiety. At a high education level, most were distributed in moderate anxiety, at 42.3%, and mild and severe anxiety, at 26.9%, respectively.

In the economic status of the low-income group, more patients experienced mild anxiety, at 51.4%. In the moderate-income group, most patients experienced mild anxiety, at 42.9%. In contrast, in the high-income group, the distribution of anxiety levels was more in moderate anxiety, at 31.6%. In the very high-income group, more experienced severe anxiety, at 26.9%.

Table 4. Overview of Anxiety Levels Based on Type of Anesthesia

Type of Anesthesia	Anxiety Levels				
	No	Mild	Moderate	Severe	Very Severe
	n (%)	n (%)	n (%)	n (%)	n (%)
General	14	36	20	18	2
	(15.6)	(40)	(22.2)	(20)	(2.2)
Regional	2	7	4	0	0
	(13.2)	(47.2)	(18.9)	(0)	(0)

Based on table 4, the levels of severe and very severe anxiety were higher for

general anesthesia, with 20% of patients experiencing severe anxiety and 2.2% experiencing very severe or panic anxiety.

For regional anesthesia, anxiety was mainly distributed to mild, affecting 47.2% of

patients, while the rest experienced moderate anxiety at 18.9% and no anxiety at 13.2%.

Table 5. Overview of Anxiety Levels Based on Type and History of Surgery

Surgery	Anxiety Levels				
	No n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Very Severe n (%)
Type of Surgery					
Oncology	3 (13)	7 (30.4)	6 (26.1)	5 (21.7)	2 (8.7)
Orthopedi	4 (18.2)	10 (45.5)	5 (22.7)	3 (13.6)	0 (0)
Digestive	4 (22.2)	10 (55.6)	2 (11.1)	2 (11.1)	0 (0)
Plastic	1 (12.5)	2 (25)	3 (37.5)	2 (25)	0 (0)
Thoracic and	1 (14.3)	1 (14.3)	1 (14.3)	4 (57.1)	0 (0)
Cardiovascular					
ENT-Head	1 (14.3)	3 (42.9)	2 (28.6)	1 (14.3)	0 (0)
Neck					
Urology	2 (28.6)	4 (57.1)	1 (14.3)	0 (0)	0 (0)
Ocular	0 (0)	1 (20)	3 (60)	1 (20)	0 (0)
Obstetric-Gynecol	0 (0)	2 (66.7)	1 (33.3)	0 (0)	0 (0)
ogic					
Vascular	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)
History of Surgery					
Yes	10 (17.2)	26 (44.8)	11 (19)	10 (17.2)	1 (1.7)
No	6	17	13	8	1

Based on table 5, in most types of surgery, the anxiety levels were more distributed in mild anxiety. However, cardiovascular thoracic surgery saw a higher distribution of severe anxiety levels, at 57.1%. In oncology surgery, 8.7% of patients experienced very severe anxiety levels. Patients with a history of surgery were found to experience more mild anxiety, at 44.8%. In patients with no history of surgery, more experienced moderate anxiety, at 28.9%, and severe anxiety, at 17.8%.

DISCUSSION

The results of this study found that the level of preoperative anxiety at Prof. Dr. I.G.N.G. Ngoerah Central General Hospital was more likely to have been mild. These findings aligned with the research by Sugiartha et al. (2021) at RSUD Buleleng, which showed that mild anxiety levels were more dominant, with 46.70% of the overall sample.^[17] A study conducted by Santosa et al. (2024) showed that most respondents experienced mild anxiety levels, at 74%.^[18] However, research by Pandiangan & Wulandari (2019) found that the number of patients with moderate anxiety was higher, at 56.3%.^[19] Research by Harahap et al. (2021) showed that the majority of respondents experienced severe anxiety, with 16 out of 21 total samples (76.2%).^[20] Variations in the instruments used, differences in the populations studied, and the large sample size could have affected the results of the anxiety levels study.

Based on age, this study found that early adulthood experienced higher levels of anxiety compared to middle adulthood and late adulthood. The results of this study aligned with the research by Marbun et al. (2023), which showed that anxiety was experienced more in early adulthood compared to late adulthood and the elderly because the higher a person's age, the lower the anxiety level.^[21] This study also aligned with the research by Mulia et al. (2021), which found that the early adulthood (18-40 years) had higher anxiety, around 6.5, compared to middle adulthood (41-60 years).^[22] Preoperative anxiety occurs more in early adulthood because younger individuals have more difficulty controlling their emotions, resulting in lower readiness to face surgery. Conversely, as people age, they become wiser in dealing with problems.^[18] Older and mature individuals

possess a level of maturity in their thought processes, leading to better coping mechanisms than younger age groups.^[23]

Based on gender, this study found that anxiety in women and men was not much different, but very severe anxiety was higher in women. The results of this study aligned with the research by Sitinjak et al. (2022), which showed that women tended to have more severe anxiety than men.^[24] Research by Li et al. (2021) found that women experienced higher anxiety than men, with 72.1% of women and 27.9% of men experiencing anxiety. Statistical tests showed a significant relationship between gender and anxiety levels.^[25] Research conducted by Putri et al. (2022) also found that the level of anxiety in women was higher, with 70% of female patients experiencing severe anxiety compared to 30% in men.^[26] Women experience more anxiety than men because they tend to have more sensitive and delicate emotions, making them more prone to feeling anxious due to stressors.^[27] Fluctuations in sexual hormones may also play a role in the etiology of anxiety in women.^[28]

Based on ethnic group, this study found that Javanese and non-Balinese Javanese experienced higher anxiety than Balinese. According to Zhang et al. (2021), ethnicity may affect the level of preoperative anxiety, so further research is needed.^[29] Each ethnic group has different beliefs and cultures that may affect a person's behavior and response to anxiety. In this study, Javanese and non-Balinese Javanese ethnic groups experienced higher anxiety, which may also be caused by patients being away from their family environment. Family support in preoperative patients is very influential on mental health, reducing anxiety and providing a sense of comfort.^[22]

Based on the level of education, this study found that severe anxiety was more prevalent in individuals with higher education. This study aligns with the research by Ayele et al. (2021), which suggests that people with higher education tend to be more anxious because they are more open in expressing feelings, actively seeking information, and are aware of potential complications that may occur.^[30] Anxiety in individuals with higher education can occur because the information obtained is incomplete and comes from diverse sources, increasing anxiety.^[31] However, this study found that very severe anxiety/panic was only present in patients with low education. Patients with low education have less understanding of the procedures,

benefits, and risks of surgery. In comparison, those with higher education have better knowledge and analytical skills, enabling them to comprehend information better.^[18]

Based on economic status, this study found a higher level of anxiety in the very high-income group. This study aligned with the results of research by Tiurma et al. (2018), which showed that the higher a person's income, the level of anxiety also increased.^[32] According to research by Sari and Rasmini (2020), patients with low income have a milder level of anxiety compared to patients with high income.^[33] High income does not always reduce a person's anxiety level, especially if someone does not have savings or adequate financial preparation, which can lead to increased worry in preoperative patients or their families. This prolonged anxiety is particularly evident in major surgical preoperative patients.^[33]

Based on the type of anesthesia, this study aligned with the research by Hikmayanty (2020) and Celik & Edipoglu (2018), which found that patients with general anesthesia had higher levels of anxiety compared to the regional anesthesia group.^[34,35] This is because patients with regional anesthesia feel more awake during surgery, as they know their surrounding environment. In contrast, patients with general anesthesia feel they have no control and are solely under the control of medical personnel during surgery, increasing anxiety levels.^[35]

Based on the type of surgery, this study found that the level of severe anxiety was higher in cardiovascular thoracic surgery patients. Patients undergoing cardiac surgery had a higher rate of anxiety compared to other surgeries due to the complex risks that made them feel insecure.^[36] This aligned with research by Prado-Olivares & Chover-Sierra (2019), which showed that in cardiac surgery, 80% of patients experienced preoperative anxiety, and 40% of patients experienced high anxiety.^[37] On the other side, this study found that very severe anxiety was higher in patients undergoing oncology surgery. According to Li et al. (2024), oncology surgery patients are prone to anxiety and depression due to their negative perceptions of the disease course and treatment outcomes.^[38]

Based on the history of surgery, the results of this study aligned with the research of Marbun et al. (2023) and Adhikari et al. (2023), which showed that patients with a history of surgery had lower anxiety levels.^[21,39] This occurs because humans can learn from experience, so individuals who have undergone surgery before will be more

prepared than those who are experiencing surgery for the first time or have never had surgery.^[21]

CONCLUSIONS

This study demonstrated the levels of preoperative anxiety in elective surgery patients at Prof. Dr. I.G.N.G. Ngoerah Hospital and showed that the majority experienced mild anxiety. This study focused on sociodemographic factors, type of anesthesia, type of surgery, and history of surgery. The majority of preoperative elective surgery patients experienced mild anxiety measured by the APAIS anxiety scores, specifically in late adulthood, female gender, Balinese ethnic group, secondary education, low-income economic status, patient with regional anesthesia, patient with vascular surgery and neurosurgery, and patient with a history of surgery.

SUGGESTIONS

Further analytic research is needed to identify the relationship between the factors causing preoperative anxiety and the levels of preoperative anxiety in elective surgery patients. Additional studies with more diverse variables and a broader population are needed to obtain more representative results. The medical staff at Prof. Dr. I.G.N.G. Ngoerah Central General Hospital are encouraged to implement management strategies for patients experiencing preoperative anxiety, particularly those with severe and very severe anxiety.

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