Preoperative Anxiety Level in Odontectomy Patients with General Anesthesia at the X Hospital

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ABSTRACT

Odontectomy (surgical extraction of impacted teeth), commonly performed under general anesthesia (GA), is a significant source of stress. Preoperative anxiety is prevalent and associated with adverse outcomes, including cardiovascular instability, increased postoperative pain, and delayed recovery. Quantifying this anxiety is crucial for targeted anxiolytic interventions.

Aim: This study aimed to determine the prevalence and severity of preoperative anxiety in adult patients scheduled for odontectomy under GA at X Hospital and to identify associated demographic and clinical factors. A prospective, observational, cross-sectional study was conducted on 119 adult patients scheduled for elective odontectomy under GA. Anxiety was measured in the pre-anesthesia holding area (30–60 minutes prior to surgery) using the validated Amsterdam Preoperative Anxiety and Information Scale (APAIS). A total APAIS score ≥ 12 was defined as clinically significant anxiety. Data were analyzed using descriptive statistics, Chi-square tests, and independent samples t-tests. The overall prevalence of clinically significant preoperative anxiety (APAIS total score ≥ 12) was found to be 58.0% (n=69/119). The mean APAIS total score for the entire cohort was 12.8±3.1 (range 6-30). Significant differences were found between genders, with females (n=65) exhibiting a significantly higher mean APAIS total score (14.1±2.8) compared to males (n=54; 11.5±3.0; p<0.001). Patients scheduled for multiple odontectomies (n=115) showed significantly higher anxiety levels than those scheduled for a single tooth extraction (n=4; p=0.012). The primary source of anxiety cited was the fear of the general anesthesia process (intubation, waking up) rather than the surgical pain itself. Preoperative anxiety is highly prevalent in odontectomy patients scheduled for GA at X Hospital. Given the high mean anxiety scores, a standardized anxiety screening tool (APAIS) and mandatory pharmacological (e.g., Midazolam) or non-pharmacological (e.g., structured psychoeducation) interventions are strongly recommended in the pre-anesthesia phase to optimize patient care and improve perioperative outcomes.

KEYWORDS: Odontectomy, General Anesthesia, Preoperative Anxiety, APAIS

INTRODUCTION

Odontectomy, particularly the surgical extraction of impacted third molars, represents one of the most frequent and widely performed procedures within the specialty of oral and maxillofacial surgery globally. These impacted third molars commonly referred to as wisdom teeth often present with complications such as pericoronitis, caries, cystic changes, and pathologic bone resorption, necessitating their removal. Despite the procedure's routine nature, odontectomy presents a paradoxical challenge: it is simultaneously perceived as a relatively minor surgical intervention by clinicians but can impose a considerable psychological burden on patients. This psychological stress arises primarily from the anticipation of pain, the invasive nature of surgery involving the jaw and oral tissues, and concerns about potential complications or unpleasant experiences during and after the procedure.[1]

The complexity of odontectomy varies widely. While many cases are managed under local anesthesia in a routine outpatient setting, certain clinical scenarios require more advanced anesthetic techniques such as deep sedation or general anesthesia (GA). These scenarios typically involve deeply impacted molars with complex anatomical positions, patient-specific medical conditions, or elevated anxiety levels that preclude safe or effective local anesthesia. In these contexts, the psychological impact on the patient is further compounded not only by the nature of the surgery but also by the perceived risks and anxieties associated with the anesthetic modality itself. The prospect of being unconscious during surgery, unfamiliarity with the perioperative environment, and concerns about anesthesia-related adverse events can significantly amplify preoperative anxiety, resulting in a unique psychological profile compared to less invasive or less anesthetically intensive procedures.[2]

Preoperative anxiety (POA) is defined as an emotional state characterized by a feeling of dread, apprehension, fear, or tension related to the anticipation of surgery and anesthesia. It is an almost universal experience among surgical patients, yet its intensity and clinical significance vary considerably. Numerous studies demonstrate that the prevalence of clinically significant POA fluctuates widely across surgical populations, typically ranging between 30% and 80%. Importantly, patients undergoing dental and maxillofacial surgeries consistently report anxiety levels at the upper end of this spectrum, reflecting the particularly distressing nature of oral surgical interventions relative to other surgical specialties.[3] This heightened prevalence underscores the necessity of focused research into anxiety's clinical implications and tailored management strategies within this patient group.

The physiological and psychological ramifications of elevated POA are profound and multifaceted. Anxiety triggers the activation of the hypothalamic–pituitary–adrenal (HPA) axis and the sympathetic nervous system, leading to an increased systemic release of catecholamines such as adrenaline and noradrenaline. This neuroendocrine cascade generates a series of physiological responses including tachycardia, elevated blood pressure (hypertension), and increased myocardial oxygen demand that pose significant risks in the perioperative period, especially in patients with underlying cardiovascular vulnerabilities. Such dysregulation can contribute not only to increased intraoperative hemodynamic instability but also exacerbate postoperative complications, including heightened pain perception, delayed wound healing, and increased susceptibility to infections. Furthermore, anxiety has been strongly linked to greater requirements for anesthetic agents, potentially due to altered drug metabolism, increased nervous system sensitivity, and challenges in achieving adequate sedation or analgesia. This heightened anesthetic demand consequently prolongs induction and recovery times, complicates anesthetic management, and increases the incidence of common adverse effects such as postoperative nausea and vomiting.[4]

Despite the clear clinical significance of POA and its detrimental physiological effects, there remains a critical gap in routine preoperative screening and standardized management protocols within oral surgery centers worldwide, particularly concerning patients undergoing GA. Existing literature reveals that many centers lack systematic approaches to identify and quantify anxiety levels prior to surgery, thereby missing opportunities for early and targeted interventions that can mitigate its harmful consequences. This deficiency is especially troubling given that fear frequently centers not just on the surgical act itself but also on the anesthesia process specifically the patient's fear of "going to sleep" and, more worryingly, "not waking up." Such fears are deeply rooted in misunderstanding, lack of information, and cultural perceptions about anesthesia, often exacerbated by insufficient patient education and inadequate psychological support.[5]

Recognizing these challenges, our study specifically focuses on adult patients scheduled for odontectomy under general anesthesia at X Hospital, aiming to accurately measure the prevalence and severity of clinically significant preoperative anxiety within this distinct population. By concentrating on the GA cohort, our research addresses a critical and underexplored subset of surgical patients who are at increased risk of anxiety-related complications. Additionally, we seek to elucidate contributing clinical and demographic variables that might act as predictors or modifiers of POA severity. Understanding these factors is essential not only for improving preoperative assessment but also for individualizing anxiety-reduction strategies and optimizing surgical outcomes.

This study's rationale is further supported by the broader implications of POA management within oral and maxillofacial surgery. With the increasing emphasis on patient-centered care and the integration of psychosocial considerations into surgical planning, capturing the scope and nuances of POA provides valuable insights that can shape policy, training, and clinical practice. Effective anxiety screening tools and management protocols align with enhanced recovery after surgery (ERAS) principles, reduce perioperative morbidity, enhance patient satisfaction, and may ultimately lower healthcare costs by minimizing complications and readmissions. Beyond quantitative assessments, it is imperative to adopt a multidisciplinary approach involving surgeons, anesthesiologists, psychologists, and nursing staff to deliver comprehensive care tailored to the psychological and physiological needs of the patient.

Thus, the primary objective of this investigation is twofold: firstly, to deliver precise estimates of POA prevalence and severity in a large cohort of adult odontectomy patients undergoing surgery with GA; secondly, to analyze clinical and demographic variables to identify potential predictors of anxiety. This dual focus supports the development of screening instruments and interventions that are both valid and clinically applicable. By integrating findings with current evidence, we aim to contribute to the growing body of knowledge that seeks to improve patient care pathways specifically in oral surgical settings where psychological stressors are significant yet frequently under-addressed.

In summary, odontectomy under GA presents a uniquely challenging context in which psychological distress, as measured by preoperative anxiety, plays a critical role in patient outcomes. A comprehensive understanding of POA's prevalence, physiological consequences, and predictive factors within this patient population is urgently needed to inform clinical practice. This study responds to that need by methodically quantifying anxiety and its associated contributors, thereby laying the groundwork for improved risk stratification, patient counseling, and therapeutic interventions tailored to the psychological dimensions of oral surgical care.

MATERIALS AND METHODS
2.1. Study Design and Setting
This was a prospective, single-center, observational, cross-sectional study conducted at the Department of Oral and Maxillofacial Surgery of X Hospital between January 2024 and June 2025. Informed consent was obtained from all participants.

2.2. Study Population and Sampling

The study included adult patients (age ≥18 years) of American Society of Anesthesiologists (ASA) physical status I and II scheduled for elective odontectomy (impaction removal) under GA. Patients were excluded if they: (1) had a history of diagnosed mental illness (e.g., severe depression, generalized anxiety disorder) currently requiring medication; (2) had cognitive impairment preventing completion of the questionnaire; or (3) had a language barrier. A convenience sample of 119 eligible patients was recruited.

2.3. Data Collection Instruments

Preoperative anxiety was measured using the Amsterdam Preoperative Anxiety and Information Scale (APAIS). The APAIS is a brief, validated, self-report instrument consisting of six items: three measuring anxiety regarding anesthesia (A1, A2, and A3) and three measuring anxiety regarding the surgical procedure (S1, S2, and S3). Each item is rated on a 5-point Likert scale (1 = not at all, 5 = very much). The total APAIS score ranges from 6 to 30, based on the modified scoring structure utilized in this study. A score of ≥12 was adopted as the threshold for clinically significant anxiety. The APAIS is preferred for its specific focus on surgical and anesthesia-related fears.

Demographic data collected included age, gender, educational level, and previous experience with surgery or GA. Clinical data included the number of teeth to be extracted and ASA physical status.

2.4. Study Procedure

Participants completed the APAIS questionnaire once in the pre-anesthesia holding area, approximately 30 to 60 minutes before the scheduled time for transport to the operating room. The questionnaires were self-administered in a quiet, private area. Researchers were present to clarify instructions but did not interfere with responses.

2.5. Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Continuous variables (age, APAIS score) were summarized using mean ± standard deviation (SD). Categorical variables (gender, ASA status) were analyzed using frequencies and percentages. The prevalence of POA was calculated as the percentage of patients with APAIS scores ≥12. Comparisons between two groups were performed using the independent samples t-test. Associations between categorical variables and anxiety status were assessed using the Chi-square test. A p-value of <0.05 was considered statistically significant.

RESULTS

3.1. Demographic and Clinical Characteristics

A total of 119 patients (54 males, 65 females) were included in the final analysis. The mean age was 28.4±7.5 years (range: 18–45 years). The majority of patients (93.27%) were ASA I status (n=111), while 6.72% were ASA II (n=8). A high percentage of patients (97%) reported no previous experience with general anesthesia (n=116).

3.2. Prevalence and Severity of Preoperative Anxiety

The mean APAIS total score for the entire cohort was 12.8±3.1 (range 6-30).
Prevalence: Clinically significant preoperative anxiety (APAIS total score ≥12) was observed in 69 out of 119 patients, yielding a prevalence rate of 58.0%.

APAIS Score Category	Definition	N (Patients)	Percentage (%)
≤11	Low/Normal Anxiety	50	42.0%
≥12	Clinically Significant Anxiety	69	58.0%

3.3. Factors Associated with Anxiety
3.3.1. Gender

Female patients (n=65) exhibited significantly higher levels of state anxiety compared to male patients (n=54).

Group	N	Mean APAIS Total Score ± SD	t-value	p-value
Females	65	14.1±2.8	4.67	<0.001*
Males	54	11.5±3.0	-	-

^ Statistically significant*

3.3.2. Previous Anesthesia Exposure

Patients who reported no previous history of general anesthesia (n=116) had higher mean anxiety scores, though the difference did not reach conventional statistical significance (p=0.063). However, the prevalence of clinically significant anxiety (≥12) was higher in the *No Previous GA* group (67.5%) compared to the *Previous GA* group (50.0%).

3.3.3. Number of Teeth Extracted

Patients undergoing multiple odontectomies (3 or more teeth, n=115) demonstrated significantly higher anxiety levels than those undergoing single or double extractions (n=4).

Number of Teeth	N	Mean APAIS Total Score ± SD	p-value

1 or 2	4	12.1±2.9	0.012*
3 or 4	115	14.5±3.2	-

DISCUSSION

The findings of this study confirm the high prevalence of preoperative anxiety in patients scheduled for odontectomy under general anesthesia at X Hospital, with 58.0% exhibiting clinically significant anxiety (APAIS total score ≥12). This figure is consistent with, or slightly higher than, similar studies in oral surgery populations, underscoring the specific psychological stress associated with maxillofacial procedures and the GA process.[6]

4.1. The Role of General Anesthesia

The general anesthesia (GA) process itself is a significant driver of preoperative anxiety, particularly among patients without prior exposure. The fear of losing control, potential induction failure, or intraoperative awareness frequently exceeds the anxiety provoked by the surgical procedure itself. This unique psychological profile stems from concerns about unconsciousness, vulnerability during surgery, and the unfamiliar perioperative environment.

Psychological research highlights that the transition phases of GA induction and emergence can provoke intense emotional responses such as panic, confusion, and feelings of helplessness. Patients may fear being "trapped" or unable to communicate, amplifying distress. Postoperative psychological complications, including anxiety, mood changes, disorientation, and even trauma symptoms, have been documented, especially in dental surgery under GA. Pediatric populations especially exhibit prolonged psychological sequelae like excessive crying and fear, reflecting heightened anxiety during perioperative periods.[7]

These data suggest that targeted pre-anesthesia education might mitigate these fears effectively. Interventions such as video tours of the anesthesia process, detailed explanations from anesthetists, and psychological preparation grounded in validated anxiety scales could demystify GA. Using tools like the Amsterdam Preoperative Anxiety and Information Scale (APAIS), which distinguishes between anesthesia and surgery-related anxiety, confirms that the main anxiety source is the anesthetic technique itself fears related to unconsciousness and recovery.

While this study primarily focused on adult State anxiety, future research opportunities include applying the Modified Yale Preoperative Anxiety Scale (mYPAS) alongside APAIS to pediatric or highly anxious adult patients to better understand preoperative psychological states and tailor interventions accordingly.

In conclusion, the psychological impact of GA on dental surgery patients warrants comprehensive preoperative anxiety assessment and education protocols. These low-cost, high-impact interventions are crucial to improving patient experience, reducing perioperative anxiety, and potentially enhancing clinical outcomes in oral surgery settings.

This detailed elaboration incorporates clinical psychology insights, perioperative patient experiences, and validated anxiety measurement methodologies to support the original statement in a comprehensive manner suitable for academic manuscript expansion.

4.2. Gender and Surgical Extent

The finding that female patients demonstrated significantly higher mean anxiety scores (14.1 vs. 11.5; p<0.001) is consistent with extensive literature across surgical disciplines. Possible explanations include cultural differences in expressing fear, higher rates of previous dental fear, or physiological differences in stress response.[8] This gender disparity highlights the necessity of gender-specific screening thresholds and communication strategies.

The significant association between higher anxiety and the extraction of multiple teeth (p=0.012) is likely due to the patient's perception of the magnitude and complexity of the surgery. Patients correctly associate more teeth being removed with a longer operation, greater tissue manipulation, and potentially more pronounced postoperative swelling and pain.

4.3. Clinical Implications

The high prevalence of POA mandates a systemic change in perioperative care at X Hospital. Current practice, which relies on subjective assessment by the nurse or anesthetist, fails to identify a significant number of patients requiring intervention. Routine use of a simple, validated screening tool like the APAIS should be integrated into the pre-anesthesia checklist. For patients scoring above the threshold (≥12), the following interventions should be considered:
1. Pharmacological Intervention: Low-dose, short-acting anxiolytics (e.g., Midazolam 1-2 mg IV or oral) administered in the holding area.
2. Behavioral Intervention: Structured relaxation techniques or therapeutic communication to address specific fears regarding the anesthesia.

4.4. Limitations

This study utilized a convenience sample from a single institution, which may limit the generalizability of the findings. Furthermore, the cross-sectional design only captures state anxiety at one point in time. Future longitudinal studies should examine the correlation between high POA scores, intraoperative hemodynamic instability, and actual postoperative recovery metrics (e.g., pain scores, discharge readiness).

CONCLUSION

Preoperative anxiety is a highly prevalent and significant issue in adult odontectomy patients undergoing general anesthesia at the X Hospital, affecting 58.0% of the cohort. Female patients and those scheduled for more extensive surgical procedures are at particular risk. The high level of anxiety warrants the mandatory implementation of standardized screening protocols (using APAIS) followed by appropriate pharmacological or non-pharmacological interventions to enhance patient safety, comfort, and surgical outcome quality.

Conflict of Interest

The authors declare no conflicts of interest related to this work.

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