









## RESEARCH ARTICLE

# REVISED Prevalence of pre-operative anxiety and associated risk factors among patients awaiting elective surgery in a tertiary care hospital [version 2; peer review: 2 approved]

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## Abstract

### Background

Patients undergoing surgery have a fear of anesthesia and surgical procedures that results in anxiety. The global incidence of pre-operative anxiety is estimated at 60–92%. Age, gender, education, marital status, type of family, type of anesthesia and surgery, and history of surgery are the contributing factors. High levels of anxiety during the pre-operative period has negative impacts on surgical outcomes. The main objective of this study was to find out the prevalence of pre-operative anxiety and associated risk factors in a hospital setting of a developing country.

### Methods

This was a single center, analytical, cross-sectional study conducted among the admitted patients scheduled for elective surgeries in a tertiary care hospital. Non-probability convenience sampling was adopted and a total of 205 cases were included. The researchers

## Open Peer Review

Approval Status  

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themselves collected the data on the day before surgery using questionnaires comprised of two parts: semi-structured questionnaires prepared via literature review and Amsterdam Pre-operative Anxiety and Information Scale (APAIS). Data were analyzed in SPSS version 23. Bivariate and multivariate analyses were performed appropriately.

## Results

The prevalence of pre-operative anxiety was 25.85%. The median anaesthesia related, surgery related, and total anxiety scores were 4.00, 5.00 and 9.00 respectively. Likewise, the median score of information desired component scale was 5.00. Different anxiety scores were positively correlated with the information desire component score. The patients living in a nuclear family (adjusted OR, 2.480; 95% CI, 1.272–4.837,  $p = 0.008$ ) and those without past history of surgery (adjusted OR, 2.451; 95% CI, 1.107–5.424,  $p = 0.027$ ) had approximately 2.5 times higher risk of having pre-operative anxiety compared to those from a joint family and those having past history of surgery respectively. Those receiving spinal anesthesia had approximately two times lower risk of anxiety (adjusted OR, 0.511; 95% CI, 0.265–0.985,  $p = 0.045$ ).

## Conclusions

One fourth of the patients had pre-operative anxiety. Type of family, type of anesthesia and past history of surgery were found to be the independent predictors of anxiety.

## Keywords

anxiety, surgery, elective surgical procedures, anesthesia

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**REVISED Amendments from Version 1**

There are no significant changes made in this new version compared to the previous one. However, we have made necessary changes in language, Grammar, punctuation, and sentence rewriting/rephrasing as suggested by the peer reviewers. We have replaced the previous term 'consecutive sampling' with 'convenience sampling' throughout the text. Likewise, the total number of study participants has been added in the abstract section. Moreover, the correlation between anxiety scores and information desired component scores has been rated as low or moderate in the result section.

The major limitation of our study is the lack of translation of the APAIS tool to the native language. We did not use the translated tool because none of the patients were educated, and a few of them could not read or write. To avoid this barrier, the researchers asked the participants questions in a standard way and assisted them in completing the questionnaires in an unbiased manner. But, this does not suffice. Therefore, we recommend the rectification of this aspect in future similar studies.

**Any further responses from the reviewers can be found at the end of the article**

**Introduction**

Anxiety is defined as an uneasy feeling about something which is uncertain.<sup>1</sup> It is common in patients awaiting surgical procedures.<sup>2</sup> Patients undergoing surgery are afraid of anesthesia and its implications. This fear results in anxiety.<sup>3,4</sup> Globally, the incidence of pre-operative anxiety is reported to range from 60% to 92%.<sup>2</sup> High levels of anxiety during the pre-operative period have deleterious effects on intra-operative and post-operative care.<sup>5</sup>

Anxiety causes variable responses in patients scheduled for surgery. These include tachycardia, hypertension, sweating, elevated body temperature, apprehension, increased mental tension and aggression.<sup>6,7</sup> Pre-operative anxiety has unfavourable effects on induction and maintenance of anesthesia. Anxious patients require larger doses of anesthetic drugs and may have autonomic fluctuations as well.<sup>8-10</sup> Anxiety aggravates perception of pain and increases the need for post-operative analgesia. It delays recovery and lengthens the hospital stay. It has been found that such patients have increased nausea and vomiting, and higher risk of infections during the post-operative period.<sup>7-9</sup> There are several factors that contribute to significant levels of pre-operative anxiety. Some of these are age, gender, level of education, marital status, economic status, type and extent of surgery planned, past surgery and anaesthesia exposure, personal susceptibility and tolerance to stress, social security and existing psychiatric disorders.<sup>1,2</sup>

It is obvious that pre-operative anxiety adversely affects the overall surgical outcomes and patients' satisfaction. Hence, it should be addressed in the right way. Assessment of anxiety before surgical procedures is therefore very important. Likewise, a very few studies have been conducted on this topic in Nepal. The main objective of this study was to find out the prevalence of pre-operative anxiety in adult patients scheduled for elective surgery, and its associated risk factors in our setting.

**Methods****Study setting**

This study was conducted in the surgery ward of Shree Birendra Hospital, a tertiary care hospital of Nepal from the beginning of May 2022 till mid-October 2022. It is a teaching hospital of the Nepalese Army Institute of Health Sciences, College of Medicine, Kathmandu, Nepal. The ward consisted of two units: male and female, with a total of 150 beds. All the cases scheduled for elective surgeries are admitted here after surgical consultation.

**Study design and participants**

This was a single-center, analytical, cross-sectional study conducted in elective surgery patients admitted to the surgery ward. Adult patients more than 18 years old who were scheduled for elective surgery under spinal or general anesthesia were included. Patients aged less than 18 years, with known psychiatric disorders under medication, and who could not understand Nepali language well were excluded. The included patients were scheduled for different major surgeries like gastrointestinal, hepato-biliary, urological and orthopedic surgeries.

**Sampling and sample size**

Non-probability convenience sampling method was adopted. All the pre-operative patients in the surgery ward were taken according to their admission to the hospital for major elective surgeries.

The minimum sample size was calculated by using Cochran's formula as follows:

$$n = Z^2 pq / e^2 = (1.96^2 \times 0.31 \times 0.69) / 0.07^2 = 167.34$$

Where:

$n$  = sample size

$Z = 1.96$  at 95% confidence interval

$p$  = Prevalence from previous study (prevalence of pre-operative anxiety in reference no. 1 study is 31%)<sup>1</sup>

$q = 1 - p = 0.69$

$e$  = standard error (taking 7%)

The calculated minimum sample size was approximately 167. However, we took 205 cases in our study.

### Data collection and study variables

The researchers approached the patients' ward one day before surgery. Written informed consent from the pre-operative patients who were willing to participate in the study was obtained after explaining the research objectives and processes in detail. Then, the researchers asked the patients questions while they were comfortably seated or lying down.

The questionnaires were comprised of two parts. Part-I contained semi-structured questions prepared through extensive literature review. These included socio-demographic variables like age, gender, religion, profession, education, type of family and marital status. Likewise, it also incorporated clinical and surgical characteristics that could possibly affect pre-operative anxiety levels like presence of co-morbidities, duration of hospital stay before surgery, type of surgery and anesthesia, past history of major surgery. Similarly, part-II included the Amsterdam Pre-operative Anxiety and Information Scale (APAIS)<sup>11-14</sup> which contained six questions in total. Two questions were related to patients' anxiety about surgical procedures, the next two questions concerned anxiety of anesthesia, and the remaining two questions evaluated the need for information regarding surgery and anesthesia. Each question was scored subjectively by the patient in a 5-point Likert scale graded from 1 through 5, where '1' denotes 'minimal' or 'not at all' and '5' denotes 'extremely.' A total anxiety score of more than 10 was considered having pre-operative anxiety. Likewise, in the information scale, a score of 2-4 was classified as having no or little information requirement, 5-7 as having an average information requirement and a score of 8-10 as having a high information requirement.

The reliability of APAIS in our study sample was high with Cronbach's alpha = 0.852 (acceptable with >0.7). Before starting data collection, pre-testing was done in 10% of the study sample.

### Ethical consideration

Ethical approval was obtained from the Institutional Review Committee of the Nepalese Army Institute of Health Sciences (IRC Reg. No. 420, Ref No. 245). Before conducting the study, permission was obtained from the hospital authority and the Head of the Department of Surgery. Written informed consent was taken from the patients themselves. In case of uneducated patients, the investigators themselves explained the entire content of the consent form in their native language, and the consent was approved by taking their finger stamps.<sup>15</sup> The privacy and anonymity of patient information were well-maintained.

### Data analysis

Initially, the collected data was entered in Microsoft Excel, 2010 after which it was imported and analyzed in IBM SPSS (Statistical Package for the Social Sciences), version 23. The Shapiro-Wilk W test was performed to check the normality of continuous data. The median/interquartile range was calculated for non-normally distributed variables, which included age of patients, duration of hospital stay before surgery, pre-operative anxiety scores, and information desired component scores. The dependent variable was pre-operative anxiety (yes/no), while the rest of the variables influencing anxiety levels were independent variables. The categorical variables were expressed in frequency and percentages. First, Chi-square/Fisher's exact test was applied to check the association between dependent and independent categorical variables. For continuous variables, a Mann Whitney U test was performed to check association. Thus, statistically significant variables showing no collinearity among themselves were further tested by performing binary logistic regression analysis. The significance level was taken as  $p < 0.07$ , with a 95% confidence interval considering a 7% standard error throughout the analysis. Likewise, the Spearman's correlation between different anxiety scores and information desire component scores was also calculated.

## Results

### Socio-demographic characteristics

A total of 205 cases were taken and analyzed. Among them, 105 (51.22%) were males and 100 (48.78%) were females. The overall median age was 47 (34–59) years out of which 108 (52.68%) patients belonged to age groups less than or equal to 50 years. One hundred and two (49.76%) patients lived in a nuclear family whereas the rest (50.54%) were from a joint family. Most of the patients followed Hinduism (86.83%) followed by Buddhism (11.71%) and Islam (1.46%). Regarding occupation, only nine (4.39%) were health professionals. Most of the participants (87.32%) were educated to different academic levels, i.e., primary or secondary or above secondary. One hundred and seventy (82.93%) were married, 19 (9.27%) were unmarried and 16 (7.81%) were widows/widowers (Table 1). The full dataset can be found under underlying data.<sup>16</sup>

**Table 1. Factors affecting pre-operative anxiety in elective surgery patients.**

SN	Variables	Total n (%)	Pre-operative anxiety		p-value
			Yes n (%)	No n (%)	
1	Age category (years)				0.325
	≤ 50	108 (100.00)	31 (28.70)	77 (71.30)	
	> 50	97 (100.00)	22 (22.68)	75 (77.32)	
2	Gender				0.554
	Male	105 (100.00)	29 (27.62)	76 (72.38)	
	Female	100 (100.00)	24 (24.00)	76 (76.00)	
3	Occupation				0.698
	Health personnel	9 (100.00)	3 (33.33)	6 (66.67)	
	Non-health personnel	196 (100.00)	50 (25.51)	146 (74.49)	
4	Education				0.726
	No education	26 (100.00)	7 (26.92)	19 (73.08)	
	Primary	24 (100.00)	8 (33.33)	16 (66.67)	
	Secondary	93 (100.00)	21 (22.58)	72 (77.42)	
	Above secondary	62 (100.00)	17 (27.42)	45 (72.58)	
5	Type of family				<b>0.006</b>
	Nuclear	102 (100.00)	35 (34.31)	67 (65.69)	
	Joint	103 (100.00)	18 (17.48)	85 (82.52)	
6	Marital status				0.084
	Unmarried	19 (100.00)	2 (10.53)	17 (89.47)	
	Married	170 (100.00)	44 (25.88)	126 (74.12)	
	Widow/widower	16 (100.00)	7 (43.75)	9 (56.25)	
7	Type of anesthesia				<b>0.044</b>
	General	88 (100.00)	29 (32.95)	59 (67.05)	
	Spinal	117 (100.00)	24 (20.51)	93 (79.49)	
8	Past history of surgery				<b>0.044</b>
	Yes	61 (100.00)	10 (16.39)	51 (83.61)	
	No	144 (100.00)	43 (29.86)	101 (70.14)	
9	Type of surgery				0.507
	Gastrointestinal	71 (100.00)	22 (30.99)	49 (69.01)	
	Hepato-biliary	55 (100.00)	14 (25.45)	41 (74.55)	
	Urology	44 (100.00)	8 (18.18)	36 (81.82)	
	Orthopedics	35 (100.00)	9 (25.71)	26 (74.29)	
10	Duration of hospital stay before surgery (days)	3.00 (1.00-4.00)	3.00 (1.00-5.00)	2.00 (1.00-4.00)	0.164

p-value is obtained by Chi-square/Fisher's exact test for categorical variables and Mann Whitney U test for continuous variable.

### Clinical and surgical characteristics

The most common co-morbidity was hypertension (28.29%) followed by diabetes mellitus (12.20%). All these co-morbidities were well controlled, and the patients were well optimized in their pre-operative period. Most of the cases (34.63%) were undergoing gastrointestinal surgery followed by hepato-biliary (26.83%), urology (21.46%) and orthopedic surgery (17.07%). Among them, 61 (29.76%) had a past history of surgery performed under spinal or general anesthesia. Among the cases undergoing these surgeries, the majority were planned to receive spinal anesthesia (57.07%), and the remaining 88 (42.93%) would be operated on under general anesthesia (Table 1).

### Pre-operative anxiety: Prevalence and scores

Out of the total pre-operative cases, 53 (25.85%) had pre-operative anxiety (i.e. a total anxiety score  $\geq 11$ ). The median anesthesia related, surgery related, and total anxiety scores were 4.00, 5.00 and 9.00 respectively. Likewise, the median score of information desired component scale was 5.00. Seventy-two (35.12%) patients had little or no information requirement regarding the surgical procedure and/or anesthesia, 101 (49.27%) had an average information requirement, and 32 (15.61%) had a high information requirement. There was a statistically significant positive correlation between different anxiety scores and the information desired component score. The correlation was low positive between information desired component and anaesthesia/surgery related anxiety scores whereas it was moderately positive with combined anxiety score (Table 2).

### Factors affecting pre-operative anxiety

The bivariate analyses showed that the patients living in a nuclear family had significantly higher pre-operative anxiety compared to those from a joint family (35[34.31%] vs 18[17.48%],  $p = 0.006$ ). Likewise, the patients who were to receive general anesthesia for their surgeries reported a significantly higher anxiety level than those receiving spinal anesthesia (29[32.95%] vs 24[20.51%],  $p = 0.044$ ). Similarly, the patients who had a past history of surgery were significantly less anxious during the pre-operative period than those with no significant past surgical history (10[16.39%] vs 43[29.86%],  $p = 0.044$ ). All other parameters did not show any significant difference in pre-operative anxiety in surgical patients.

### Logistic regression

The binary logistic regression analysis showed that the patients who were living in a nuclear family had approximately 2.5 times higher risk of having pre-operative anxiety compared to those living in a joint family (adjusted OR, 2.480; 95% CI, 1.272–4.837,  $p = 0.008$ ). Likewise, the cases who were going to receive spinal anesthesia had approximately two times

**Table 2. Correlation between different anxiety scores and information desire component score.**

	Anaesthesia related anxiety	Surgery related anxiety	Combined anxiety component	Information desired component
Median score	4.00	5.00	9.00	5.00
IQR	3.00 – 5.00	4.00 – 6.00	7.00 – 11.00	4.00 – 6.00
Spearman's correlation coefficient ( $\rho$ )	<b>0.494 (<math>p &lt; 0.001</math>)</b>	<b>0.427 (<math>p &lt; 0.001</math>)</b>	<b>0.515 (<math>p &lt; 0.001</math>)</b>	

IQR: Interquartile range.

**Table 3. Binary logistic regression showing independent predictors of pre-operative anxiety.**

Variables	AOR	[95% C.I.]	Std err.	p-value	
Type of family					
Joint	1 (Reference)				
Nuclear	2.480	1.272	4.837	0.341	<b>0.008</b>
Type of anesthesia					
General	1 (Reference)				
Spinal	0.511	0.265	0.985	0.335	<b>0.045</b>
Past history of surgery					
Yes	1 (Reference)				
No	2.451	1.107	5.424	0.405	<b>0.027</b>

CI: Confidence interval; AOR: Adjusted odds ratio; Std Err: Standard error.

lower risk of anxiety in the pre-operative period than those undergoing general anesthesia (adjusted OR, 0.511; 95% CI, 0.265–0.985,  $p = 0.045$ ). Similarly, the patients who did not have a past history of surgery were approximately 2.5 times more likely to have pre-operative anxiety in comparison to those who had some surgery in the past (adjusted OR, 2.451; 95% CI, 1.107–5.424,  $p = 0.027$ ). In this way, type of family, type of anesthesia and past history of surgery (yes/no) were found to be the independent predictors of pre-operative anxiety (Table 3).

## Discussion

In our study, the prevalence of pre-operative anxiety was 25.85%, with average total anxiety score being 9.00 and information desired component score being 5.00. Almost half of the patients (49.27%) had an average information requirement, and 15.61% had a high information requirement. The anxiety scores and information scale score were significantly positively correlated. This infers that the patients with higher pre-operative anxiety were in the need of more information and counseling regarding their surgical procedures. The patients living in a nuclear family, not having a past history of surgery, and scheduled to receive general anesthesia had 2 to 2.5 times higher risk of having anxiety during the pre-operative period compared to those from joint family, those having past surgical history and those going to receive spinal anesthesia.

The prevalence of pre-operative anxiety in our study is comparatively lower than that of worldwide data that estimates its incidence to be around 60 to 92%.<sup>2</sup> A study done in Ethiopia showed that significant anxiety was present in 70.3% of the patients scheduled for surgery.<sup>8</sup> Likewise, in Saudi Arabia, 60% of the pre-operative patients had high anxiety.<sup>5</sup> Prevalence of anxiety was also found to be high (76.7%) amongst Sri Lankan patients admitted for surgery.<sup>3</sup> To the contrary, a study conducted in India depicted that overall prevalence of anxiety in elective surgical patients was 31%, which is comparable to our findings.<sup>1</sup> On the other hand, a similar study in Nepal showed the presence of severe pre-operative anxiety in the majority (57.3%) of surgical patients.<sup>2</sup> These differences could be due to the difference in sample size, sampling techniques, different study population and hospital settings, and different types of anxiety measuring tools being used in these studies worldwide. Moreover, we assessed the anxiety level on the day before surgery. Had we evaluated it on the day of surgery, the anxiety level would have been raised significantly.

Surgery is indeed a psychologically stressful experience. So, some degree of anxiety is natural to this unpredictable and potentially threatening situation. However, high anxiety during pre-operative period has negative impacts on surgical outcomes.<sup>5</sup> The patients start to have anxiety as soon as the surgery is planned, and it increases to a maximum on admission to hospital.<sup>6</sup> Anxiety causes unnecessary fear, irritability and autonomic fluctuations in admitted patients. These unpleasant symptoms may compel them to refuse the planned surgeries.<sup>8</sup> Pre-operative anxiety negatively affects induction of anesthesia. It causes different problems like difficult venous access, delayed jaw relaxation and coughing during induction.<sup>8,9</sup> It has been found that such patients have increased nausea and vomiting, and higher risk of infections during post-operative period.<sup>7-9</sup>

Addressing patients' anxiety during the pre-operative period is a must.<sup>3</sup> There are both pharmacological and non-pharmacological methods of reducing anxiety in the pre-operative period. Patients are routinely administered hypnotic/ anxiolytic medications before surgery. Non-pharmacological methods include effective communication strategies, and provision of surgical information in videos or written form.<sup>17</sup> Past studies have found that patient education may decrease anxiety and reduce the need for sedation to relieve anxiety and pain.<sup>18-20</sup>

There are a few limitations of this study to be mentioned. First, non-probability convenience sampling was adopted with a smaller sample size. Moreover, this is a single center study, so the findings may not be generalizable for a larger population or whole country. Future studies should include multiple study centers in different parts of the country with a relatively larger sample size. Next, anxiety level was measured at a single instance. However, past studies have shown that anxiety in pre-operative patients differs significantly in the perioperative period. Moreover, it would have been relevant if post-operative anxiety had also been studied. Likewise, pediatric patients were excluded from our study. Children also suffer significant anxiety during the pre-operative period, so including this group in the research would have increased the clinical relevance. In addition to this, we did not use the translated tool because none of the patients were educated, and a few of them could not read or write. To avoid this barrier, the researchers asked the participants questions in a standard way and assisted them to complete the questionnaires in an unbiased manner. APAIS has been validated in different countries<sup>21-26</sup> including South East Asia, so using this tool in our setting was considered to be appropriate.

Despite many limitations, our study provides some useful clinical information. First, it puts light on the anxiety burden among pre-operative patients in developing countries like ours. Next, it depicts the possible underlying risk factors contributing to significant anxiety during the pre-operative period and makes clinicians aware of the management of these factors beforehand. This adds to the existing medical knowledge, and possibly enhances patient care and satisfaction.



Besides, this research encourages further analytical studies with a larger sample size and superior design to be conducted in the future. All these contribute to enhanced perioperative care and management of surgical patients in hospital settings.

## Conclusions

In our study, one fourth of the patients experienced anxiety during the pre-operative period. The majority of them had an average information requirement regarding the surgical procedure and anesthesia. Type of family, type of anesthesia and past history of surgery were the independent predictors of pre-operative anxiety. These factors should be assessed and addressed well before performing surgery.

## Consent

Written informed consent for publication of the participants' details was obtained from the participants. In the case of uneducated patients, the consent was approved via taking their finger stamps after explaining all the contents of consent form in their native language.

## Data availability

### Underlying data

Figshare: Underlying data for 'Prevalence of pre-operative anxiety and associated risk factors among patients awaiting elective surgery in a tertiary care hospital', <https://www.doi.org/10.6084/m9.figshare.23244059.v4>.<sup>16</sup>

This project contains the following underlying data:

- Data file 1: Excel data.xlsx
- Data file 2: Preoperative data.sav

### Extended data

Figshare: Extended data for 'Prevalence of pre-operative anxiety and associated risk factors among patients awaiting elective surgery in a tertiary care hospital', <https://www.doi.org/10.6084/m9.figshare.23541501.v1>.<sup>15</sup>

This project contains the following extended data:

- Supplementary file 1: Questionnaire.pdf
- Supplementary file 2: Consent form in English and Nepali.pdf

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/) (CC-BY 4.0)

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# Open Peer Review

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## Version 2

Reviewer Report 01 February 2024

<https://doi.org/10.5256/f1000research.159965.r229544>

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### Suraj Shakya

Department of Psychiatry and Mental Health, Institute of Medicine, Tribhuvan University, Kirtipur, Kathmandu, Nepal

Thank you for submitting the revised draft. The authors have integrated some suggestions, while some have not been included, possibly reflecting differences in opinion. Finally, I suggest only one specific correction: setting a significance level of  $p < 0.07$  is unconventional and could elevate the risk of Type I error (false positives). Please take care of that.

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** I am an academic faculty and clinical psychologist, with research interest in psychometrics and psychological intervention.

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

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## Version 1

Reviewer Report 24 October 2023

<https://doi.org/10.5256/f1000research.149457.r210142>

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### Suraj Shakya

Department of Psychiatry and Mental Health, Institute of Medicine, Tribhuvan University, Kirtipur, Kathmandu, Nepal

The authors have undertaken an important study on pre-operative anxiety in a tertiary-level hospital in Kathmandu. Undoubtedly, this is an important research, and the write up is okay too. However, there are some points for improvement. Most of the points are minor comments, except one major comment:

1. Heading: Consider removing the word 'prevalence' from the heading, as it appears fine without it. Just a suggestion only.
2. Abstract: Include the number of participants in the methods section of the abstract.
3. Abstract: In the first sentence of the results section, present only percentages rather than raw numbers.
4. Abstract (Result): When stating, "The patients living in a nuclear family...approximately 2.5 times higher risk of having pre-operative anxiety," specify the reference group for comparison (e.g., 2.5 times higher risk than...?).
5. Introduction, 3rd paragraph, 4th sentence: Rephrase the word 'rarely' since there are some researches in Nepal as well.
6. Method, Study Design, 1st sentence: Reevaluate whether the design can be termed analytical; it seems more like a 'cross-sectional descriptive' design. Just my opinion, but please seek input from colleagues in this field.
7. Sampling and sample size: Please justify why this is consecutive sample (instead of purposive, or convenience method); and this statement is not clear 'all the patients were taken consecutively'.
8. Sampling and sample size (sample size calculation): I was curious, why were data from similar studies in Nepal not used? Not necessary to incorporate this suggestion, if the team think this is justified.
9. Data Collection and Study Variables, 2nd paragraph, 2nd sentence: Provide citations for the literature being referred to, if possible, to enhance authenticity.
10. Data Collection and Study Variables (this is a Major Comment): If translation was performed, particularly for illiterate participants, clearly describe the process. Please mention clearly how many enumerators were involved, and how did they maintain uniformity in instant translation during data collection, in method section (in data collection section). As you have mentioned 'standard way' (2nd last para of discussion section), please elaborate on what this means. This is very important; otherwise, this would seem a major flaw and limitation of this study.
11. Data Analysis: Confirm whether the significance level is set at 0.05 or 0.07.
12. Results, Socio-Demographic/Surgical Characteristics: Simplify and condense the wording in

this section, as detailed information may be found in the tables. For instance, this sentence 'Of these, 108 (52.68%) and 97 (47.32%) belonged to age groups less than or equal to 50 years and above 50 years respectively.' could be deleted.

13. Ensure uniformity in the presentation of numbers and percentages [3, 5% vs 3(5%)] throughout the entire article, especially in the results section.
14. Table 1: Remove the '(100.00)' in the entire third column with the heading 'Total.'
15. Table 2 and its elaboration in the Results Section: Clarify the rationale for correlating the 'information desire' component with other components. If there's a specific reason, this could be explained in the introduction, results, or discussion sections. Otherwise, other components could be correlated with each other too. The second sentence in the discussion section also mentions about 'information requirement'. I was wondering, if this 'information requirement' could be rephrased, rather than just repeating the same jargon from the anxiety tool. It would be meaningful, if it is rephrased.
16. Results, Preoperative Anxiety Section, last sentence: Mention the strength of the correlation, whether it's strong, moderate, or weak.
17. Discussion, 1st Paragraph, 2nd sentence: Eliminate the restatement of 'median/mean score' in this context.
18. Discussion, 1st Paragraph, last sentence: Specify the reference (comparison) group when discussing the '2.5 times greater risk than...'.  
19. Time frame when patients were assessed: In the Discussion section, 2nd paragraph, 2nd last sentence, you have mentioned about the time frame when patients were assessed. This is important. If this time duration is also mentioned in the method section of the abstract, it would be more meaningful to readers.

**Is the work clearly and accurately presented and does it cite the current literature?**

Partly

**Is the study design appropriate and is the work technically sound?**

Partly

**Are sufficient details of methods and analysis provided to allow replication by others?**

Yes

**If applicable, is the statistical analysis and its interpretation appropriate?**

I cannot comment. A qualified statistician is required.

**Are all the source data underlying the results available to ensure full reproducibility?**

Partly

**Are the conclusions drawn adequately supported by the results?**

Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** I am an academic faculty and clinical psychologist, with research interest in psychometrics and psychological intervention.

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

Author Response 08 Dec 2023

**Bishnu Deep Pathak**

Dear Reviewer,

Thank you for reviewing our article. We have made necessary changes in the manuscript as appropriate and as suggested by you. We hope you will kindly consider our article for further approval. Below are the replies to your comments:

1. Thank you for this comment. We have edited this in the manuscript.
2. Thank you for this comment. We have added total number of cases in the abstract method section.
3. Thank you for this comment. We have used only percentage in the result of abstract and have omitted the raw numbers.
4. Thank you for this comment. We have edited it as you have suggested (eg. compared to reference groups like joining family, having past surgical history, etc).
5. Thank you for this comment. The word 'rarely' has been replaced and the sentence has been rewritten appropriately.
6. Thank you for this comment. We totally agree with your opinion that this is a cross sectional study. But, since we have used an inferential statistics in this study, this now becomes an analytical cross sectional study rather than just descriptive.
7. Thank you for this comment. We have used the term 'convenience sampling' as suggested by you. The word consecutive sampling has been replaced accordingly
8. Thank you for this comment. The study referenced in sample size calculation looks very similar to our setting and in terms of design and methodology. Due to this reason, we found this study to be more appropriate for our sample size calculation. Please kindly consider it.

9. Thank you for this comment. This sentence is intended to describe the different variables that we used in our questionnaire apart from APAIS tool while collecting data. And, these questions were prepared after extensive literature review by the investigators themselves. Almost all the studies included in the reference section were reviewed meticulously for the questionnaire. So, we think that referencing is not relevant in this part. Please kindly consider it.

10. Thank you for this comment. We totally agree that lack of translation of APAIS tool into the native language is a major limitation of our study. But, as stated in the manuscript, the investigators had themselves asked the questions of this tool in a 'standard way.' Before doing this, the investigators had a discussion regarding how to ask each of the question to the patients in their native language. We had discussed about how much information to provide to the patients and also the way of asking each question. A special care was taken regarding the possibility of discrepancies that may arise while interviewing the cases. To avoid this error, all of the investigators involved in data collection had done a rehearsal beforehand as well. So, we had tried our best to minimize differences and possible bias in this scenario. But, still, this is a weak part of this study that needs to be rectified in future studies on this topic.

11. Thank you for this comment. In our study, the margin of error has been taken as 7% and level of significance being 0.07.

12, 13, 14. Thank you for these valuable comments. We have made edits in the manuscript as suggested by you

15. Thank you for this comment. We have added a few sentences in the manuscript to address this. As described in the past literature, the information desired component is related to anxiety scores in the pre-operative period. It has been found that the higher the information score, the higher would be the anxiety level. In other words, those patients who were not properly informed about their surgical procedure, they would remain anxious and fearful regarding their surgery and would be expecting someone to provide them detail information leading to higher information component score in APAIS tool. Therefore, we used this statistical analysis in our study.

16-19. Thank you for these valuable comments. We have made necessary changes in the manuscript as suggested.

**Competing Interests:** No competing interests were disclosed.

Reviewer Report 17 October 2023

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**Khagendra Kafle** 

Department of Psychiatry, Chitwan Medical College Teaching Hospital (CMCTH), Chitwan, Nepal

The research topic is very relevant in the Nepalese context because there are very few studies done in this field. The methodology is sound. The tools used are fine. I have some comments on this article which I have mentioned below.

1. Abstract: The background section can be rewritten. It should be shorter. It should normally contain what is known about the research topic and what is to be known about it (or the research objective) in 2-4 sentences.
2. There is a discrepancy about the included samples: elective surgeries (mentioned under study setting) or major elective surgeries (mentioned under sampling).
3. APAIS being a self-rated instrument, it should be in the native language of the research participants. Less education of the participants may not be the proper justification for not translating/validating it into the Nepali language. This is a major limitation of this study.
4. There is a discrepancy in the sampling technique mentioned in the article. It is mentioned as consecutive sampling at one place and convenience sampling in another place. Please correct it.

**Is the work clearly and accurately presented and does it cite the current literature?**

Yes

**Is the study design appropriate and is the work technically sound?**

Yes

**Are sufficient details of methods and analysis provided to allow replication by others?**

Yes

**If applicable, is the statistical analysis and its interpretation appropriate?**

Yes

**Are all the source data underlying the results available to ensure full reproducibility?**

Yes

**Are the conclusions drawn adequately supported by the results?**

Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Psychiatry

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

Author Response 08 Dec 2023



**Bishnu Deep Pathak**

Dear Reviewer,

Thank you for reviewing our article. We have made the necessary changes in the manuscript as suggested by you and as appropriate. We agree that the lack of translation of the APAIS tool in the native language is a major limitation of our study and hence we think that future studies on this topic need to rectify this aspect. Regarding sampling, we have used the term 'convenience sampling' throughout the text. We have tried to make our abstract as concise as possible.

Thank you.

**Competing Interests:** No competing interests were disclosed.

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