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Original Article

Pre-operative anxiety amongst patients in a tertiary care hospital in India- a prevalence study

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Abstract

Background: The prospect of undergoing surgery under anaesthesia can induce significant anxiety in patients. Excess anxiety can lead to several deleterious effects like perioperative cardiac events, increased anaesthetic requirements, higher postoperative pain scores and prolonged hospital stay. Various factors can influence the anxiety levels during surgery. The aim of the study was to estimate the prevalence of anxiety in adult patients scheduled for surgery in a suburban teaching institute in India where the majority of patients belong to lower socioeconomic strata.

Methods: One hundred consecutive patients scheduled for various elective surgeries were asked 6 questions according to the Amsterdam preoperative anxiety and information scale to assess their anxiety levels just before shifting into the Operating room. Probable contributing factors noted were age, sex, socioeconomic status, type of surgery, duration of hospital stay, and history of previous surgery. Any specific factors causing anxiety like failure or complications of surgery, recovery from anaesthesia, needle pricks were also asked with leading questions.

Results: The overall prevalence of anxiety was 31%. The prevalence in male patients and female patients were 21.2% and 39.5% respectively. There was a moderate correlation between the anxiety scores and need to know scores. The effects of sex, previous surgery, the length of hospital stay were not significant upon the anxiety scores.

Conclusion: The overall prevalence of anxiety in the southern part of India was lower when compared to many of the reported studies; however, the prevalence was higher among the female patients.

Keywords: anaesthesia; anxiety; anxiety scale; preoperative period; prevalence

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Introduction

Anxiety is defined as "A feeling of worry, nervousness, or unease about something with an uncertain outcome". The incidence of preoperative anxiety can be as high as 80%.[1] Excessive anxiety has deleterious effects like hypertension and tachycardia due to sympathetic stimulation and can also increase anaesthetic requirements[2] and create complications like prolonged recovery, greater post-operative pain etc.[3] The neurohumoral response to anxiety causes elevated intraoperative cortisol levels.[4] Anxiety can be an independent risk factor that predicts postoperative cardiac events.[5]

Patient-related factors like age, sex, the level of education and economic status, pain tolerance, previous surgery and anaesthesia exposure, existing psychiatric problems, social security can affect the anxiety levels. Procedure-related factors like major surgeries, chronicity of the problem, emergency and unscheduled procedures, and destructive procedures might play a role. The attitude of the health care providers, communication skills of the doctors, the overall impression of the institution, beliefs and opinions of neighbouring patients also exert influence. Preoperative Anaesthetic Information, Anaesthetic Catastrophizing and Imminence of Surgery were shown to be statistically significantly associated with an overall increased level of anxiety.[6] Other factors like fear of disability, medical errors, noise levels, unpleasant smell, financial loss, cancellations also play a role.

Pharmacological anxiolysis is a commonly adopted strategy to allay anxiety, the effectiveness of which is variable. Among the premedication drugs used for anxiolysis, benzodiazepines have been shown to provide consistent anxiolysis. Diazepam is one of the most common benzodiazepines used for this purpose.[7] Anxiolytic effects are seen at low doses because of diazepam's interaction with BZ2 receptors in the limbic system.[8] However, the value of routine anxiolytic premedication is questioned in the era of better patient education.[9]

An empathic attitude by the anaesthesiologist during the preoperative visit can decrease anxiety when continuous care is provided by the same anaesthesiologist (One patient one anaesthesiologist).[10] This may not be possible in countries like India where the patient load is high. Preoperative multimedia information about the procedure can also decrease anxiety immediately before the surgery.[11] Well-informed patients are less anxious.[12]

Preoperative anxiety among adults is an under-reported problem in India and only a few studies have addressed the issue.[13] The Amsterdam preoperative anxiety and Information scale is a validated tool for measurement of anxiety. The scale has been translated into various languages like German[14], Mexican[15], Thai[16], Korean[17], Japanese[18] and Srilankan.[19] We have used an Indian language (Tamil) version of APAIS as a measurement tool for anxiety.

The aim of this study was to estimate the prevalence of anxiety in adult general surgical premedicated patients just before shifting into the operating room.

Methods

After ethics committee approval, one hundred consecutive patients undergoing elective surgeries were recruited as a convenient sample for this observational cross-sectional study. The period of the study was from October to November 2016. Consent was taken just before the questionnaire was answered.

Inclusion criteria were all adult patients undergoing elective surgery, had received premedication the previous night, willing to participate in the study and able to answer the questions. Patients with preexisting psychiatric illnesses, those who did not receive premedication, those having difficulty understanding and communicating or unwilling to participate were excluded.

The primary objective of this study was to estimate the prevalence of anxiety in adult general surgical premedicated patients just before shifting into the operating room. Secondary objectives include assessing the correlation of sex, socio-economic status, previous surgery and length of hospital stay upon anxiety.

In the preoperative holding area, the questions from the APAIS questionnaire were asked by a single anaesthesia resident to assess the degree of anxiety. The patients were comfortably seated or lying down position. Privacy and confidentiality were ensured before asking questions.

The APAIS consists of 6 questions, 2 each for anaesthesia and surgery-related anxiety and 2 more for information desired component related to anaesthesia and surgery. Each question is scored on a 1 to 5 Likert scale, 1 being minimal and 5 denoting extreme values.

Table 1. APAIS Questionnaire

	Not at all	1	2	3	4	5	Extremely
1. I am worried about the anaesthetic							
2. The anaesthetic is on my mind continually							
3. I would like to know as much as possible about the anaesthetic							
4. I am worried about the procedure							
5. The procedure is on my mind continually							
6. I would like to know as much as possible about the procedure							
The subscales							
Anesthesia-related anxiety	Sum A = 1 + 2						
Surgery-related anxiety	Sum S = 4 + 5						
Information desired component	Sum I= 3 + 6						
Combined anxiety component	Sum C = sum A + sum S (1 + 2 + 4 +5)						

Other data collected were:

1. Age, sex, nature of surgery
2. Socio-economic status. (Modified Kuppuswami socioeconomic status scale 2012)
3. Length of hospital stay
4. Previous surgery
5. Any Specific anxiety-inducing factor (What do you worry the most regarding surgery?)

APAIS anxiety scores of more than 10 were considered as anxiety. Prevalence of anxiety is presented as the percentage. Pearson's correlation was used to correlate anxiety score and desire for information score. Chi-Squared test was used to establish the effect of sex, previous surgery and length of hospital stay (Short < 1 week and long > 1 week). Kruskal-Wallis test was used to compare anxiety scores with respect to socio-economic status. An alpha error of 5% was allowed.

Results

The overall prevalence of anxiety (APAIS anxiety score >10) was 31%. The prevalence between male patients and female patients were 21.2% and 39.5% respectively. (Table 2)The higher prevalence in female patients was statistically significant (Chi-square test, p=0.026). The effect of social status upon anxiety scores was not significant as analysed by the Kruskal-Wallis test. (p=0.81). The majority of the patients fell into social status III and IV. (n= 44 and 48 respectively). Chi-square test showed no significant influence of previous surgery and length of hospital stay (short-l7 days or less, long- more than 7 days) upon anxiety scores.

The mean anaesthesia, surgery and total anxiety scores were 3.46, 3.61 and 7.07 respectively. (Table 3). There was a moderate correlation between the need to know scores with anaesthesia anxiety score (Pearson's coefficient r=0.493) and total anxiety score (Pearson's coefficient r=0.455).

Table 2. Factors affecting perioperative anxiety

Parameter		**APAIS >10 (%)**	**p value**
Sex	Male (n=52)	21.15%	0.026% *
	Female (n=48)	39.5%	
Socio economic status (SES)	SES 4 or less (n=96)	30.2%	0.47
	SES 5 and above (n=4)	50%	
Duration of hospital stay before surgery	7 days or less (n=45)	37.77%	0.184
	8 days or more (n=55)	25.45%	
Previous surgery	Yes (n=64)	34.37%	0.33
	No (n=36)	25%	

(*significant)

Table 3. Various anxiety scores and its correlation with information desired component of APAIS

	Anaesthesia-related anxiety	Surgery related anxiety	Combined anxiety component	Information desired component
Mean score (SD)	3.46 ±2.16	3.61 ± 2.2	7.07 ± 4.08	2.6 ± 1.68
Range	0-7	0-8	0-15	0-5
Pearson's correlation (r)	0.493	0.344	0.455	

(with Information desired component)

Discussion

Patient anxiety is often neglected during anaesthesia and surgery, and the effects are deleterious. Anxiety may develop several days before the surgery and might continue to the post-operative period. Patients with a higher level of preoperative anxiety have higher postoperative anxiety scores. The time of anxiety assessment is also important. Several studies assess anxiety on the day before surgery. Patients can have maximum anxiety just before anaesthesia induction.[21] Patients may have higher levels of anxiety at the pre-operative holding area as compared to the ward or the operating room.[22]

Regarding tools for measurement of anxiety, the STAI (State-trait anxiety Inventory Questionnaire) is considered gold standard. It consists of 20 statements and each statement can take values from not at all, somewhat, moderately or very much so. Even though STAI is available in several languages, the statements become difficult to translate and becomes incomprehensible to patients with low educational levels. For example, "I feel tense;' and 'I feel jittery' might mean the same in translation, and a more literary word loses its meaning to the layman. Hence the APAIS scoring which is simple, easy to comprehend and correlates well with other tools of measurement of anxiety was used. Other commonly used scales are Hospital Anxiety and depression score and visual analogue anxiety scale. The HADS scale is not specific for preoperative anxiety and VAS scale does not distinguish surgical and anaesthesia related anxiety. The APAIS score was specially designed for anxiety assessment by anaesthesiologists and has a high degree of correlation with STAI scores.[23] APAIS anxiety scores of more than 10 were considered as significant anxiety. This level was found to have an acceptable balance between sensitivity and specificity.[14]

The prevalence of anxiety in preoperative patients in various studies ranges from51%[24], to 76.7%.[19] A range of 60% to 80% has been suggested.[11] In a study with 79 patients in India, the prevalence of pre-operative anxiety was 45.7%.[12] But in our study, the prevalence was 31% which is lower than these reported studies.

Anxiolytic premedication the night before surgery is a common practice, and in our study, most patients had received oral diazepam. This is one of the reasons the prevalence of anxiety is low in our study. The prevalence of anxiety was higher in females in agreement with previous studies.[1,23] The correlation between total anxiety scores and need for information score was moderate (Pearson's coefficient= 0.45) similar to other studies.[23]

Most of the patients were of lower and upper-lower socio-economic status. Economic and social status plays an important role in anxiety. Income levels have been shown to be an independent predictor of pre-operative anxiety. For a unit increase in income, preoperative state anxiety score increases by 0.002.[25] This might also explain the lower prevalence of anxiety in our study group. Few reported studies have taken a sample size of ranging from 51 to 200[22,24], our sample size was based on a previous study conducted in Srilankan population[19] and is a sample of convenience.

The factor that induces most anxiety varies across countries and reflects the cultural and traditional values of the society. Whereas in the west, waiting, pain and awareness, loss of control etc are anxiety inducing factors[1], concerns about family, financial losses were shown to be the important factors in a study from Pakistan[26], and fear of death and unknown was the major factor in an Ethiopian study[25], fear of postponement and mishaps were the leading cause of anxiety in a Nigerian study.[27] No specific anxiety-inducing factor emerged in our study.

What we have measured is the prevalence of anxiety among a set of surgical patients, as we have not assessed whether the patients were already anxious (Prone to anxiety -high trait anxiety) or the anxiety is entirely due to the surgery and anaesthesia (State anxiety). The APAIS score does not distinguish state anxiety (anxiety during a threat) and Trait anxiety (tendency to respond with state anxiety) in individuals, unlike STAI questionnaire which has 20 questions each for state and trait anxiety, separately. However, the APAIS correlates well with the total STAI scores. If we had taken a set number of patients without preexisting anxiety and followed them up to the perioperative period (or a set time, like one year) and then measured how many of them develop anxiety then that would indicate the Incidence of anxiety. What we have measured is a point prevalence of anxiety across a cross

section of the population during the preoperative period. Prevalence does not distinguish "Old" cases and "New" cases, that is those who were already anxious and those who experience anxiety only before the surgery.

Strengths and Limitations

We have employed a regional language version of the APAIS score to assess preoperative anxiety in premedicated patients just before shifting inside the operating room, in contrast to most studies which assessed anxiety the day before surgery or without premedication. Our study design resembles the real world scenario more closely, enhancing the external validity and applicability of the results.

The regional language version of the primary measurement tool is not validated, a major limitation of our study. The sample size of hundred was selected as it was more practical, might not be sufficient to extrapolate the results to a wider population. Also, most of the patients were from low socio-economic status and the results might not apply to other population categories. The estimated prevalence was lower as compared to other studies. The reason for low anxiety can be multifactorial, and a larger sample with multivariate regression analysis might delineate the influence of individual factors upon anxiety.

In conclusion, we have evaluated pre-operative anxiety in premedicated patients using a regional language Tamil version of the APAIS scale just before surgery. The result shows a prevalence of 31% and is significantly more in female patients when compared to male patients. The anxiety scores correlate with the need for information scores and dissemination of more procedure-related information may help in reducing the anxiety.

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