RESEARCH PAPER

A Comparative Study of Verbal and Virtual Counselling on Preoperative Anxiety Related to Anesthesia in Patients Undergoing Elective Surgery

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ABSTRACT

Background:

Preoperative anxiety is very common among patients undergoing elective surgery, which leads to negative surgical outcomes and delayed postoperative recovery. Preoperative counselling is crucial as it helps patients reduce anxiety and have a better understanding of anesthesia and surgery.

Objective:

This study aims to compare the levels of preoperative anxiety related to anesthesia between verbal and virtual counselling in patients undergoing elective surgery.

Methods:

A comparative interventional study was conducted among 80 patients undergoing elective surgery at NIMS Hospital, Jaipur. They were randomized into two groups: verbal (n=40) and virtual counselling (n=40). The anxiety levels were assessed before and after counselling by using Amsterdam Preoperative Anxiety and Information Scale (APAIS) and Numerical Rating Scale for Anxiety (NRS-A). The data analysis was done using IBM SPSS Statistics software.

Result:

The result shows that both verbal and virtual counselling groups have reduced preoperative anxiety. The mean APAIS score in verbal counselling group reduced from 6.15 ± 1.73 before counselling to 4.42 ± 1.47 after counselling, showing a mean reduction of 1.72 ± 1.32. The mean score in virtual counselling group reduced from 6.60 ± 1.50 to 3.08 ± 0.97, showing a greater mean reduction of 3.52 ± 1.52. A significantly greater reduction of anxiety was seen in virtual counselling group ($p < 0.001$).

Conclusion:

Preoperative counselling is essential for reducing anesthesia-related anxiety in patients undergoing elective surgery. Virtual counselling can be an alternative and effective method in delivering preoperative education.

Keywords: preoperative anxiety, anesthesia-related anxiety, verbal counselling, virtual counselling, Amsterdam Preoperative Anxiety and Information Scale.

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Introduction

Anxiety prior to surgery is commonly observed in the majority of patients reporting different levels of anxiety throughout the preoperative phase.(1)Preoperative anxiety concerns about the illness, anesthesia, lack of knowledge of surgical procedure, postoperative pain, and fear of death are frequently associated with such reactions.(1) These fears have been related to delayed wound healing, increased perception of pain, postoperative nausea and vomiting (PONV) (2), extended hospital stays. (3) The variables associated with preoperative anxiety fluctuate with clinical environment; social surroundings and demographics. (4)A study indicates that the increase in preoperative anxiety changes from one geographical region to another. (2) Pharmacological methods, particularly use of benzodiazepines, have been used to lower preoperative anxiety (5,6) Some of the non-pharmacological methods used to reduce preoperative anxiety are pre-procedure education, reassurance, music therapy, breathing techniques, meditation, and acupressure. (7,8) A previous study conducted shows that anxiety levels were less in Anesthesia Information Sheet (AIS) group when compared to verbal counselling (PC) group where patients were explained the concepts of anesthesia. (9) Another study used verbal counselling and multimedia counselling where they explained anesthesia, its administration and aftercare by verbally and video from YouTube for multimedia. The results showed a significant reduction of anxiety in multimedia counselling. (10) Studies have shown that video counselling can help patients learn more about anesthesia and reduce their anxiety before surgery. (11) Many other studies show effectively reduced preoperative anxiety levels in patients by slow breathing and through virtual reality, audiovisual virtual tours and eventually leading to patient satisfaction. (12,13) There are various validation instruments used to assess anxiety levels like APAIS, STAI, HADS, VAFS, NRS-A (14,15)

The present study compared the preoperative anxiety related to anesthesia by verbal and virtual counselling as not many studies were done on the comparison on anesthesia anxiety in adult patients undergoing elective surgery. The preoperative anxiety levels are validated using tools like APAIS and NRS-A.

2. Method

2.1 Study design and population

This comparative interventional study was conducted in the Department of Anesthesiology at NIMS Hospital, Jaipur from January to March 2026, to understand the effects of verbal and virtual counselling in preoperative anxiety related to anesthesia among adult patients undergoing elective surgery. Patients were evaluated during the preoperative period. A total study population of 80 patients who were aged above 18 years and ASA grade I or II were included and patients who are not willing to give consent, those with psychiatric illness, or psychotropic medication, and those with cognitive impairment were excluded.

2.2 Study procedure

Patients scheduled for elective surgery were evaluated a day prior to the surgery. Patient detail like demographic data and clinical data like age, sex, educational status, planned surgery and history of any previous surgery were collected. Patients' vital parameters like heart rate, blood pressure, and respiratory rate were measured before and after counselling as a part of routine preoperative monitoring. Patients in Group A received verbal counselling explained preoperative measures, nil per oral, anesthesia and operation theatre conditions, perioperative postoperative recovery. Patients in Group B underwent virtual counselling where the same information explained in Hindi with animated educational video.

2.3 Anxiety assessment instruments and data analysis

Preoperative anxiety was assessed with Amsterdam Preoperative Anxiety and Information Scale (APAIS) where patients were asked to choose a score. It consists of six questions; each scored on the Likert scale from 1 to 5. Another tool used was the Numerical Rating Scale for Anxiety (NRS-A) with a scoring system from 0 to 10, where 0 refers to no anxiety, and 10 refers to extremely anxious. The data collected were recorded and analyzed using IBM SPSS Statistics Software. Continuous variables were presented using mean and standard deviation, and categorical variables in frequencies and percentages. Statistical tests used were independent t-test, Mann-Whitney U test, Wilcoxon signed-rank test and Chi-square test with statistical significance at p value < 0.05. Ethical approval was obtained from the NIMS university Ethical Committee and written informed consent obtained from all participants maintaining confidentiality.

3. Results

A total of 80 patients were allotted to two groups; verbal (Group A) and virtual counselling groups (Group B)

(n=40 each). All the patients' demographic and clinical characteristics including age, gender, educational status, ASA grade, previous surgery history, and types of anesthesia were presented in Table 1.

Table 1: Distribution of demographic and clinical characteristics between groups

Variables	**Group A n (%)**	**Group B n (%)**	**p-value**
Age			
18-30	12 (30%)	7 (17.5%)	
31-45	9 (22.5%)	14 (35%)	0.1693
46-60	7 (17.5%)	12 (30%)	
>60	12 (30%)	7 (17.5%)	
Gender			
Male	23 (57.5%)	26 (65%)	0.6462
Female	17 (42.5%)	14 (35%)	
Educational status			
Illiterate	12 (30%)	5 (12.5%)	
Read and write	12 (30%)	21 (52.5%)	
High school	11 (27.5%)	11 (27.5%)	
Degree and above	4 (10%)	3 (7.5%)	
ASA Grade			
ASA I	9 (22.5%)	6 (15%)	0.5667
ASA II	31 (77.5%)	34 (85%)	
Previous surgery			
Yes	14 (35%)	21 (52.5%)	0.1763
No	26 (65%)	19 (47.5%)	
Types of anesthesia			
General anesthesia	20 (50%)	14 (35%)	
Spinal anesthesia	19 (47.5%)	21 (52.5%)	0.2683
Nerve block	1 (2.5%)	2 (5%)	
Local anesthesia	0	3 (7.5%)	

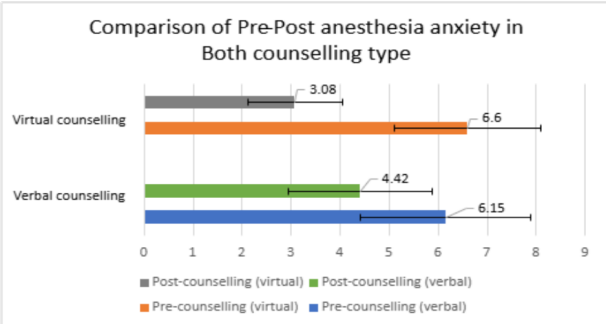
Majority of the patients in Group A were aged from 18-30 and >60 years (30%), whereas in Group B highest percentage were from 31-45 years (35%). It was also seen that majority of the patients were male in both Group A and B (57.5%; 65%). Most of the patients in Group A were illiterate and who could read and write (30%) whereas in Group B the majority were able to read and write (52.5%). Most of the patients were having ASA grade II in both groups. The distribution of types of anesthesia was having a higher proportion of general (20%) and spinal (21%) anesthesia in Group A and B, respectively. However, all the distribution of demographics and clinical characteristics were comparable between the groups. There were no statistically significant differences between groups ($p>0.05$).

The comparison of anxiety scores in pre and post counselling in both Group A and B are represented in Table 2. In Group A the mean pre-counselling score was 6.15 ± 1.73 and in Group B its 6.60 ± 1.50. The post-counselling anxiety scores reduced to 4.42 ± 1.47 in Group A and 3.08 ± 0.97 in Group B. The mean reduction in anxiety scores was 1.72 ± 1.32 in Group A and 3.52 ± 1.52 in Group B, it shows that the patients who received virtual counselling has a significant reduction in anxiety scores when compared to verbal counselling. The reduction in anxiety score between the groups was statistically significant ($p<0.001$). A significant reduction seen in surgery related anxiety score in both groups after counselling ($p<0.001$). Similarly, the need for anesthesia and surgery information also decreased post counselling ($p<0.001$) also the overall anxiety score (NRS-A) has a significant reduction post counselling in both Group A and B ($p<0.05$).

Table 2: Comparison of anxiety scores in pre and post counselling in both groups

Anxiety tool	Variables	Group A Mean ± SD	Group B Mean ± SD	p-value

Anesthesia-related anxiety (APAIS)	Pre-counselling	6.15 ± 1.73	6.60 ± 1.50	p<0.001
	Post-counselling	4.42 ± 1.47	3.08 ± 0.97	
	Reduction in score	1.72 ± 1.32	3.52 ± 1.52	
Surgery-related anxiety (APAIS)	Pre-counselling	7.78 ± 1.90	7.85 ± 1.58	p<0.001
	Post-counselling	4.85 ± 1.41	3.73 ± 0.85	
Need for anesthesia info (APAIS)	Pre-counselling	2.77 ± 1.10	3.75 ± 1.33	p<0.001
	Post-counselling	1.73 ± 0.64	1.45 ± 0.60	
Need for surgery info (APAIS)	Pre-counselling	2.88 ± 1.14	3.98 ± 1.23	p<0.001
	Post-counselling	1.82 ± 0.71	1.50 ± 0.60	
Overall anxiety (NRS-A)	Pre-counselling	7.55 ± 1.71	7.25 ± 1.46	p<0.001
	Post-counselling	5.20 ± 1.47	4.47 ± 1.32	
	Reduction in score	2.35 ± 0.86	2.77 ± 0.92	p<0.05



Graph 1: Comparison of pre-post anesthesia anxiety in both Group A and Group B

Discussion

The present study was conducted to compare the preoperative anxiety related to anesthesia of verbal and virtual counselling in adult patients undergoing elective surgery. The preoperative anxiety related to anesthesia was significantly reduced in both verbal and virtual counselling groups among patients undergoing elective surgery. A significantly greater reduction was seen in virtual counselling group when compared to verbal counselling group. In APAIS a mean reduction of 1.72 ± 1.32 was seen in verbal counselling group whereas 3.52 ± 1.52 was seen in virtual counselling for anxiety related to anesthesia and the difference was statistically significant $p < 0.001$ .Thus the study finding states that virtual counselling was more effective than verbal counselling in reducing preoperative anxiety in patients undergoing elective surgery. A similar study was conducted by Nikhil Shukla *et al.* (2025) who used verbal and multimedia counselling in patients undergoing elective surgery using APAIS to compare preoperative anxiety. Both groups showed reduction in anxiety, but multimedia counselling showed a significant reduction than verbal counselling. (10) Similar finding was done by Narges Sadeghi *et al.* (2025), Parisa Moradimajd *et al.* (2024), and Sachin K.Rajput *et al.* (2021) showed that those who received multimedia education have a significant reduction in preoperative anxiety undergoing surgical procedures. (16-18)

Aparna Bagle *et al.* (2024) also conducted a study on patients undergoing elective surgery where the preoperative anxiety was compared using verbal counselling and verbal counselling with anesthesia information sheet. However, verbal counselling with anesthesia information sheet showed a significant reduction in preoperative anxiety. (9)

The demographic characteristics in both the groups were comparable and had no significant difference in age, gender distribution, ASA grade, and previous surgery history. Therefore, both verbal and virtual counselling groups had the same characteristics at baseline. Virtual counselling was done by using animated video with Hindi audio, making it easier for the patients to understand the anesthetic procedure and perioperative procedures. The audio and video explanation not only increased comprehension in patients but may also increase confidence in them, making it better than verbal counselling alone. Therefore, virtual counselling may be considered an effective way to ease preoperative anxiety in patients undergoing elective surgery.

Conclusion

The present study concludes that both verbal and virtual counselling are effective in reducing preoperative anxiety related to anesthesia among adult patients undergoing elective surgery. However, virtual counselling showed a significantly greater reduction in anxiety when compared to verbal counselling. The use of animated audiovisual information improves patient understanding of anesthesia and perioperative procedures, especially among patients with lower educational status. Therefore, virtual counselling can be considered an effective and simple method for reducing preoperative anxiety and improving patient preparedness before elective surgery.

Reference

1. Akutay S, Ceyhan Ö. The relationship between fear of surgery and affecting factors in surgical patients. Perioperative Medicine. 2023 Jun 9;12(1):22.

2. Oh J, Lee W, Ki S, Suh J, Hwang S, Lee J. Assessment of preoperative anxiety and influencing factors in patients undergoing elective surgery: an observational cross-sectional study. Medicina. 2024 Feb 27;60(3):403.

3. Mbadugha CJ, Omotola NJ, Emega JE, Madu OT, Obiekwu AL. Preoperative Anxiety and its Associated Factors among Adult Patients Undergoing Elective Surgery in Tertiary Hospitals in Enugu, Southeast Nigeria. Nigerian Journal of Clinical Practice. 2025 May 1;28(5):633-40.

4. Markos Z, Mekuanint A, Lorato SS, Mekeso YW, Yirga S, Mugoro M, Aligaz EM, Soramo GG, Simegn AE. Evaluation of preoperative anxiety and anesthesia-related fears in a comprehensive hospital in Ethiopia. Annals of Medicine and Surgery. 2025 Jun 1;87(6):3162-70.

5. Abbas Z, Ali T, Iqbal S, Munaf A, Usman M. Effect of Benzodiazepines on Reducing Pre-Operative Anxiety. Journal of Health, Wellness and Community Research. 2025 Jun 19:e370-.

6. Zanella S, Buccelletti F, Vassiliadis A, De Bortoli R, Visentini S, Pedrotti G, Azzalin L. Preoperative anxiety management: acupuncture vs. pharmacological treatment-A prospective study. European Review for Medical & Pharmacological Sciences. 2022 Feb 1;26(3).

7. Kharod U, Panchal NN, Varma J, Sutaria K. Effect of pre-operative communication using anaesthesia information sheet on pre-operative anxiety of patients undergoing elective surgery—A randomised controlled study. Indian Journal of Anaesthesia. 2022 Aug 1;66(8):559-72.

8. Almalki MS, Hakami OA, Al-Amri AM. Assessment of preoperative anxiety among patients undergoing elective surgery. The Egyptian Journal of Hospital Medicine. 2017 Oct 1;69(4):2329-33.

9. Bagle A, Yerramshetty M, Garud IG. Comparison between effect of preoperative verbal counseling versus preoperative counseling using anesthesia information sheet on anxiety of patients undergoing elective surgeries: a randomized comparative study. Cureus. 2024 Jul 16;16(7).

10. Shukla N, Trivedi P, Dubey N, Awasthi AA. Comparison of Anxiety Using the Amsterdam Preoperative Anxiety and Information Scale Score in Preoperative Patients Counselled Through Verbal Versus Multimedia Mode. Cureus. 2025 May 22;17(5).

11. Xing J, Gong C, Wu B, Li Y, Liu L, Yang P, Wang T, Hei Z, Zhou S, Chen C. Effect of an educational video about ERAS on reducing preoperative anxiety and promoting recovery. Heliyon. 2023 Oct 1;9(10).

12. Wicaksana IG, Harta IP, Kamaryati NP, Putra IN. Effectiveness of slow deep breathing and virtual reality intervention on reducing preoperative anxiety. Nurse Professional Education Journal. 2025 May 28;1(1):39-46.

13. Kumar V, Yadav P, Bangarwa N, Budhwar D, Kumar P, Arora V. A randomized controlled trial to assess the efficacy of a pre-operative virtual operation theatre tour on anxiety and patient satisfaction in adults undergoing elective surgery. Cureus. 2022 Dec 9;14(12).

14. Kuzminskaitė V, Kaklauskaitė J, Petkevičiūtė J. Incidence and features of preoperative anxiety in patients undergoing elective non-cardiac surgery. Acta Medica Lituanica. 2019;26(1):93.

15. Ossai EN, Nwosu AD, Onwuasoigwe O, Ubboe K, Ameh J, Alu L. Prevalence and predictors of anxiety among surgical patients in the preoperative holding area of National Orthopaedic Hospital, Enugu, Nigeria: A Cross-Sectional Study. Journal of West African College of Surgeons. 2023 Apr 1;13(2):105-12.

16. Sadeghi N, Salari N, Jalali R. Effect of multimedia education on anxiety and pain in patients undergoing laparoscopic cholecystectomy: a Solomon four-group randomized controlled trial. Scientific Reports. 2025 Mar 18;15(1):9357.

17. Rajput SK, Tiwari T, Chaudhary AK. Effect of preoperative multimedia based video information on perioperative anxiety and hemodynamic stability in patients undergoing surgery under spinal anesthesia. Journal of Family Medicine and Primary Care. 2021 Jan 1;10(1):237-42.

18. Moradimajd P, Shamsadini R, Maroufi SS, Totonchi Z, Abolghasemi J. Comparison of the Effectiveness of

Multimedia and Face-to-Face Education on the Level of Preoperative Anxiety of Patient Undergoing Coronary Artery Bypass Graft (CABG). Archives of Anesthesia and Critical Care. 2025 Feb 26.