

Impact of Audiovisual Film on Preoperative Anxiety Levels in Patients Undergoing Spinal Anesthesia

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Abstract:

Background: Preoperative anxiety is known to negatively impact the outcomes of patients undergoing spinal anesthesia. Audiovisual educational tools have demonstrated greater efficacy in alleviating anxiety compared to conventional verbal explanations.

Aims: This study aimed to assess the effectiveness of an audiovisual film in alleviating preoperative anxiety in patients scheduled for spinal anesthesia.

Methods: This prospective cohort study included 260 patients undergoing elective surgery with spinal anesthesia. Participants were randomly assigned to one of two groups: one group received verbal information regarding the anesthesia procedure, while the other was provided with information via an audiovisual film. Anxiety levels were assessed at three time points—baseline, one hour prior to surgery, and postoperatively—using the Amsterdam Preoperative Anxiety and Information Scale (APAIS) and the Visual Analog Scale for Anxiety (VAS-A). Data were analyzed using SPSS.

Results: Patients who watched the audiovisual film exhibited significantly lower anxiety scores than those who received verbal information, as measured by APAIS and VAS-A ($p < 0.001$). Moreover, patients in the film group reported higher satisfaction with the information provided.

Conclusion: Audiovisual films are a highly effective approach to reduce preoperative anxiety in patients undergoing spinal anesthesia. Integrating these tools into preoperative care protocols may enhance patient satisfaction and improve overall outcomes.

Keywords: Audiovisual film, preoperative anxiety, spinal anesthesia, APAIS, VAS.

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Introduction

Preoperative anxiety is a significant issue that can adversely affect surgical outcomes, particularly in patients undergoing spinal anesthesia. Common causes of anxiety include fear of complications and misconceptions about the procedure. Educational interventions, such as audiovisual films, have been shown to reduce anxiety and improve patient outcomes. This study aims to evaluate the effectiveness of an audiovisual film in reducing preoperative anxiety among patients scheduled for spinal anesthesia. Preoperative anxiety is a prevalent concern among patients undergoing surgical procedures, driven by uncertainties surrounding the operation, anesthesia administration, and potential complications.[1,2] This anxiety not only impacts patient's psychological well-being but also triggers physiological responses, such as heightened heart rate and blood pressure, which can influence

surgical outcomes.[3] Fear associated with anesthesia, encompassing worries about complications and intraoperative awareness, significantly contributes to preoperative anxiety.[4] Moreover, misconceptions surrounding regional anesthesia, such as fears of permanent paralysis and spinal injury, further intensify patient apprehension.[5] Providing accurate information during preanesthetic evaluations is crucial in alleviating these fears and misconceptions, particularly concerning procedures like spinal anesthesia. Accurately assessing preoperative anxiety levels is challenging yet imperative for optimizing patient care. Various validated questionnaires, including the Amsterdam Preoperative Anxiety Information Scale (APAIS) and the Visual Analog Scale (VAS), are utilized to gauge anxiety levels in patients. [6,7,8] Of these, APAIS is widely acknowledged for evaluating

anxiety related to anesthesia, surgery, and patients' desire for information. Multimedia tools, such as audiovisual films, have emerged as effective mediums for imparting information to patients and mitigating preoperative anxiety. [9,10,11,12] However, limited research has specifically explored the impact of audiovisual films on patients undergoing spinal anesthesia. The primary objective of this study was to evaluate the effectiveness of a targeted audiovisual film in reducing preoperative anxiety in patients scheduled for elective surgery under spinal anesthesia. This study aimed to assess the anxiety levels of patients who viewed the audiovisual film compared to those who received standard verbal information about the procedure. By comparing the two groups, this research sought to determine whether multimedia tools, such as audiovisual films, offer a more effective approach to mitigating preoperative anxiety in the context of spinal anesthesia. This investigation contributes to the growing body of evidence supporting the use of multimedia in patient education and anxiety management in surgical settings.

Methods

This prospective, observational study was carried out in a tertiary care hospital from 2017 to 2019. It took place in both the hospital wards and the operating theater. Before the study began, approval was obtained from the institutional ethics committee. The study adhered to ethical standards, including obtaining informed consent from all participants. The study was designed to investigate the impact of audiovisual (AV) educational tools on preoperative anxiety in patients scheduled for elective surgeries under spinal anesthesia.

Participants included in the study were adults between the ages of 18 and 65 years who were scheduled for elective surgery under spinal anesthesia and had an ASA (American Society of Anesthesiologists) Physical Status Classification of I, II, or III. Patients were excluded if they were unwilling to participate, could not read or understand English, Hindi, or Marathi, had visual or hearing impairments, had pre-existing psychological disorders, had undergone previous surgeries with spinal anesthesia, or were pregnant or lactating. In total, 260 patients met the inclusion criteria and were enrolled in the study, with 130 patients assigned to each study group.

The required sample size was calculated using Cochran's formula for comparing proportions. An initial calculation indicated that 127 participants per group were necessary to detect significant differences, but the sample size was adjusted to 130 per group to allow for potential dropouts. One day prior to surgery, eligible participants were briefed on the study's purpose and procedures. Written

informed consent was obtained from participants who agreed to take part. Demographic information, such as age, gender, and relevant medical history, was collected. Baseline anxiety levels were recorded for all participants using the Amsterdam Preoperative Anxiety and Information Scale (APAIS) and the Visual Analog Scale for Anxiety (VAS-A). APAIS was provided in Hindi and Marathi for participants who required it.

Participants were randomly assigned to one of two groups: the audiovisual (film) group or the control (non-film) group. Those in the film group watched an AV presentation that detailed the spinal anesthesia procedure, covering aspects such as patient positioning and the steps of anesthesia administration. The control group received standard verbal instructions from their surgeon about the procedure. Additional consent was obtained from participants in the film group to allow them to view the AV content.

On the day of surgery, anxiety levels were reassessed one hour prior to the procedure using the APAIS and VAS-A scales. Postoperatively, the same scales were used to assess anxiety levels in the Post-Anesthesia Care Unit (PACU) before patients were transferred to the ward. During the entire process, all participants received verbal information from their surgeons regarding their specific surgical procedures. Two validated tools were used to measure anxiety levels: the APAIS and VAS-A. The VAS-A is a straightforward tool that allows patients to rate their anxiety on a 10 cm scale, where 0 indicates no anxiety and 10 indicates maximum anxiety. Anxiety levels were classified as low (0-3), moderate (4-6), or high (7-10). The APAIS consists of six questions that assess both anesthesia- and surgery-related anxiety, as well as the patient's desire for information. Each question is rated on a scale of 1 to 5, and total anxiety scores were categorized as low (4-8), moderate (9-15), or high (16-20). Information desire scores were also categorized as low, moderate, or high.

All participants were given standardized information about the risks and potential complications of spinal anesthesia, including nerve injury, block failure, and postoperative issues like headache, nausea, and urinary retention. Participants in the film group were shown a detailed AV presentation on the spinal anesthesia process and were asked to provide feedback on the film's effectiveness in reducing their anxiety.

Data analysis was conducted using SPSS software (version 22.0). Descriptive statistics, including means and standard deviations, were calculated for continuous variables, while categorical variables were expressed as frequencies and percentages. Comparisons between the two groups were made using the Chi-square test for categorical variables

and unpaired t-tests for comparing mean anxiety scores. A p-value of less than 0.05 was considered statistically significant.

A total of 260 participants were included in the final analysis, with 130 in both the film and non-film groups. Demographic characteristics, such as age, gender, ASA classification, and education level, were similar between the two groups. Significant reductions in anxiety levels were observed in the film group compared to the non-film group both one hour prior to surgery and in the PACU. Intra-group analysis also showed significant decreases in anxiety from baseline to one hour prior to surgery and in the PACU for both groups.

Results

A total of 260 patients were included in the study after meeting the eligibility criteria. Among them, 130 were assigned to the audiovisual (AV) group, and 130 to the control (non-film) group. All participants completed the study, and no participants were excluded at any stage. Every patient who entered the study remained for the full duration and was included in the final analysis. A flow diagram was considered to clearly present participant flow through each stage of the study.

The demographic characteristics, including average age, gender distribution, and ASA classification, were comparable between the AV and control groups, with no statistically significant differences ($p > 0.05$). The mean age in the AV group was 37.88 years, while the control group had a mean age of 35.25 years. Gender distribution and education levels were similar between both groups, with no significant differences detected ($p > 0.05$). All patients were scheduled for elective surgery under spinal anesthesia, with no notable differences in potential confounders between the groups.

The AV group exhibited significantly lower anxiety levels both before surgery and in the Post-Anesthesia Care Unit (PACU) when compared to the control group ($p < 0.001$). The AV group experienced a more substantial reduction in both APAIS (Amsterdam Preoperative Anxiety and Information Scale) and VAS-A (Visual Analog Scale for Anxiety) scores, which was associated with greater patient satisfaction and comfort. Full statistical results are presented in Tables 1 and 2.

Anesthesia-Related APAIS Score: At baseline, anesthesia-related anxiety was similar between the AV and control groups ($p > 0.05$). One hour before surgery, anxiety significantly decreased in both groups, with a more pronounced reduction seen in

the AV group ($p < 0.001$). In the PACU, both groups exhibited further reductions in anxiety, with no significant difference between the groups at this stage.

Surgery-Related APAIS Score: Baseline surgery-related anxiety scores were comparable across both groups ($p > 0.05$). Anxiety levels significantly decreased in both groups one hour before surgery, with a larger reduction in the AV group ($p < 0.003$). Anxiety levels continued to decline similarly in both groups in the PACU.

Information-Related APAIS Score: Baseline scores related to the desire for information were comparable between the groups ($p > 0.05$). One hour before surgery, scores significantly decreased in both groups, with a more marked reduction observed in the AV group ($p < 0.001$). By the time patients were in the PACU, the decrease in scores was similar between the groups.

Combined Anxiety APAIS Score: Baseline combined anxiety scores did not differ significantly between the AV and control groups ($p > 0.05$). Anxiety levels significantly decreased in both groups one hour before surgery and in the PACU, with the AV group demonstrating a larger reduction at both time points ($p < 0.001$, $p = 0.031$ respectively).

Total APAIS Score of Anxiety: Total anxiety scores were similar between the AV and control groups at baseline ($p > 0.05$). Anxiety scores decreased significantly in both groups one hour before surgery and in the PACU, with a more substantial reduction in the AV group ($p < 0.001$, $p = 0.031$ respectively). [Refer to Table 1]

VAS-A Score: Baseline VAS-A scores were comparable between the AV and control groups ($p > 0.05$). One hour before surgery and in the PACU, VAS-A scores significantly decreased in both groups, with a more significant reduction observed in the AV group ($p < 0.001$). [Refer to Table 2] Significant reductions in total anxiety and VAS-A scores were observed within both the AV and control groups, from baseline to one hour before surgery, and again in the PACU ($p < 0.001$). However, the AV group consistently exhibited greater reductions in anxiety scores across all time points.

Patients in the AV group reported that the audiovisual film was highly effective in alleviating their preoperative anxiety. No patients in the AV group experienced increased anxiety after watching the film, and all reported that the film contributed to a sense of calmness prior to their procedure.

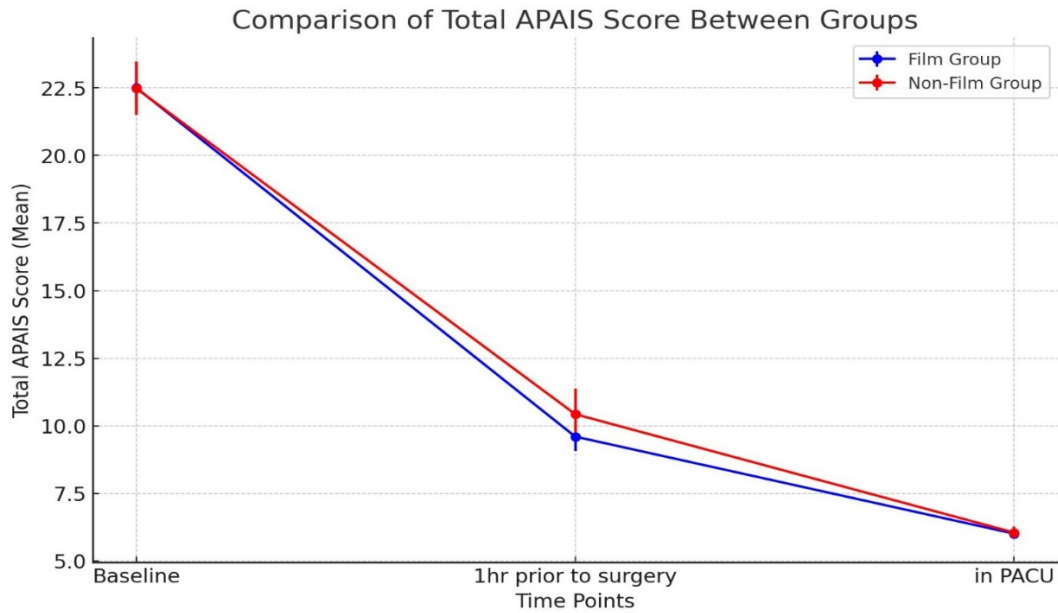


Figure 1: Comparison of total APAIS Score between Groups

In Total APAIS Score of Anxiety, Baseline total anxiety scores were comparable between the film and non-film groups ($p > 0.05$). One hour before surgery and in the PACU before transfer to the

ward, total anxiety scores decreased significantly in both groups, with a greater reduction observed in the film group ($p < 0.001$, $p = 0.031$ respectively). [Table 1]

Table 1: Comparison (intergroup) of Total APAIS Score

Total Score	Film Group (n=130) Mean (SD)	Non-Film Group (n=130) Mean (SD)	P Value
Baseline	22.50 (0.96)	22.48 (0.99)	0.850
1hr prior to surgery	9.60 (0.53)	10.43 (0.95)	<0.001*
in PACU before shifting to ward	6.01 (0.08)	6.05 (0.22)	0.031*

Unpaired t Test, P Value *Significant

Table 1: shows total APAIS score of anxiety of film and non -film group

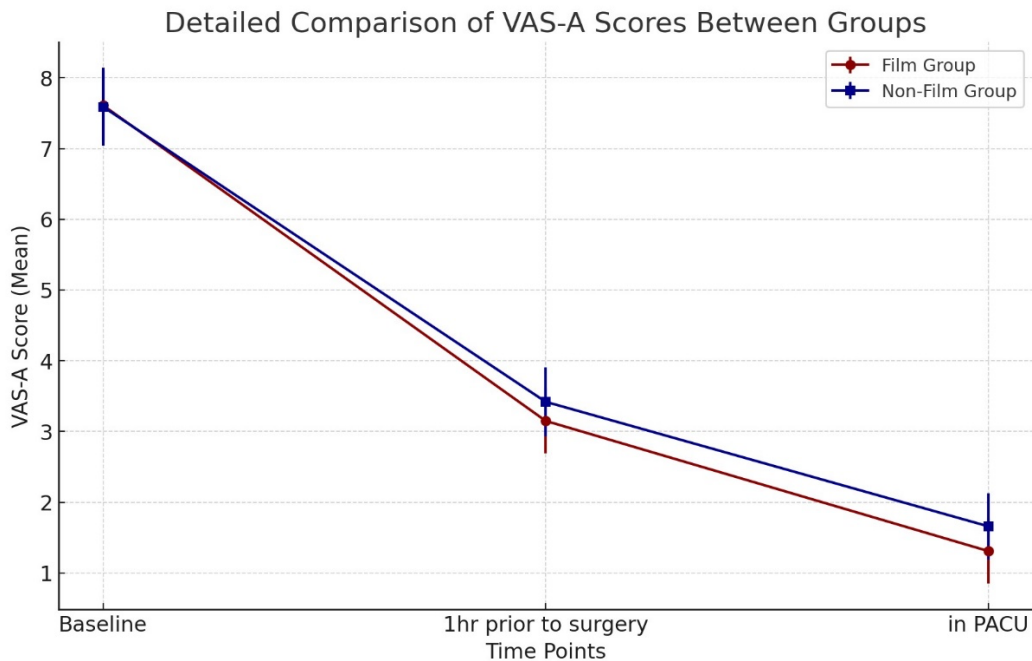


Figure 2: Details comparison of VAS-A Score Between Groups

VAS-A Score: Baseline VAS-A scores were similar between the film and non-film groups ($p > 0.05$). One hour before surgery and in the PACU before transfer to the ward, VAS-A scores decreased significantly in both groups, with a greater reduction observed in the film group ($p < 0.001$). [Table 2]

Table 2: Comparison (intergroup) of VAS-A Score

VAS-A Score	Film Group (n=130) Mean (SD)	Non-Film Group (n=130) Mean (SD)	P Value
Baseline	7.61 (0.49)	7.59 (0.55)	0.812
1hr prior to surgery	3.15 (0.46)	3.42 (0.49)	<0.001*
in PACU before shifting to ward	1.31 (0.46)	1.66 (0.47)	<0.001*

Unpaired t Test, P Value *Significant

Table 2: shows VAS-A score of film and non -film group.

Discussion

This study presents compelling evidence that audiovisual (AV) educational tools significantly reduce preoperative anxiety in patients undergoing spinal anesthesia. In line with our study objectives, the findings highlight that AV interventions are effective at alleviating anxiety, as measured by both the Amsterdam Preoperative Anxiety and Information Scale (APAIS) and the Visual Analog Scale for Anxiety (VAS-A). Patients in the AV group experienced greater reductions in anxiety levels compared to those in the control group, both one hour before surgery and in the Post-Anesthesia Care Unit (PACU). These results are consistent with previous research, which has shown that multimedia interventions improve patients' understanding of medical procedures and help alleviate anxiety. Furthermore, the sustained reduction in anxiety observed in the AV group throughout the perioperative period underscores the potential long-term benefits of these interventions on patient comfort and emotional well-being.

Preoperative anxiety is a significant concern for surgical patients, impacting their overall experience and potentially leading to adverse outcomes. [14, 15] This study aimed to assess the effectiveness of audiovisual multimedia information in reducing preoperative anxiety among patients undergoing elective surgery under spinal anesthesia. Multiple factors contribute to preoperative anxiety, including individual characteristics, surgical complexity, and unfamiliarity with anesthesia techniques. [16]

Misconceptions about regional anesthesia, particularly spinal anesthesia, can exacerbate anxiety further.[17] While pharmacological interventions are commonly used to manage anxiety, they may have limitations and might not adequately address patients' informational needs.[18] Multimedia interventions, such as audiovisual films, have emerged as promising tools for reducing preoperative anxiety by providing patients with comprehensive information about anesthesia procedures.[19] Prior studies have utilized scales like the State-Trait Anxiety

Inventory (STAI) to assess anxiety. However, in our study, the Amsterdam Preoperative Anxiety and Information Scale (APAIS) and Visual Analog Scale for Anxiety (VAS-A) offered specific and efficient tools for evaluating preoperative anxiety in our setting.[20, 21] Our findings align with previous research indicating similar baseline anxiety levels between patients who received multimedia information and those who did not.[22] Following the provision of multimedia information, we observed a significant reduction in anxiety levels one hour preoperatively in the film group compared to the non-film group. This demonstrates the effectiveness of audiovisual aids in alleviating preoperative anxiety, as evidenced by both APAIS and VAS-A scores.[23] Furthermore, our study highlights the sustained effect of multimedia information, with reduced anxiety levels maintained in the film group during the perioperative period. This contrasts with the non-film group, where anxiety levels showed less pronounced decreases. [24]

Despite the positive outcomes, this study has several limitations. One notable limitation is the lack of examination of gender-based differences in anxiety responses. Given that anxiety can vary significantly between males and females, exploring gender-specific effects could have provided additional insights. Additionally, the study relies on self-reported measures of anxiety, such as APAIS and VAS-A, which may be prone to reporting biases. Another limitation is the absence of a comparative analysis of patient satisfaction between the AV and control groups, which could have provided more comprehensive feedback on the effectiveness of the AV intervention. Furthermore, the study did not include long-term follow-up, limiting the ability to assess the enduring effects of AV tools on anxiety and patient outcomes after surgery.

While the results of this study demonstrate the effectiveness of AV tools in reducing preoperative anxiety, they should be interpreted with caution. The potential biases arising from the limitations mentioned above, such as self-reporting and the lack of gender analysis, could have influenced the outcomes. The findings align with existing

literature that supports the use of multimedia interventions in clinical settings; however, due to the study's limitations and the absence of long-term follow-up data, these results should be viewed as preliminary. Further research should address these gaps by incorporating more diverse variables, including gender-specific analyses, and evaluating the long-term impact of AV tools on patient outcomes. [25]

The generalisability of the study results may be limited. Although the AV tools were effective in reducing anxiety in patients undergoing spinal anesthesia for elective surgeries, these findings may not be directly applicable to other surgical types or patient populations. The specificity of the surgical procedures and anesthesia technique in this study may restrict the external validity of the results. Future research should aim to explore the broader applicability of AV tools in various surgical settings, different anesthesia techniques, and across more diverse patient populations to determine whether these benefits can be consistently observed.

Conclusion

This study reveal that using an audiovisual film to educate patients about spinal anesthesia significantly lowers preoperative anxiety compared to solely verbal information. Patients who viewed the audiovisual film experienced more substantial decreases in anxiety related to anesthesia, surgery, and procedural information. Additionally, the audiovisual approach received positive reviews from patients, enhancing their overall perioperative experience. Therefore, incorporating audiovisual resources into preoperative education and counseling proves to be an effective strategy for reducing preoperative anxiety in patients scheduled for surgery under spinal anesthesia.

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