
The Effect Of Audio-Visual-Based Education About Spinal Anesthesia On The Level Of Anxiety Of Pre-Operative Patients At Kardinah Tegal Hospital

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Abstract

Preoperative anxiety is a condition that can potentially endanger patients and is often caused by a lack of information regarding anesthesia procedures. The advancement of technology enables the delivery of health education through audiovisual media that combines moving images and sound. At RSUD Kardinah Tegal, preoperative education is still delivered through anesthesia information forms and has not yet utilized video-based media. This study aims to analyze the effect of audiovisual-based education about spinal anesthesia on the level of preoperative patient anxiety at RSUD Kardinah Tegal. This study employed a quantitative method with a quasi-experimental design using a pretest-posttest with control group approach. The sample consisted of 76 respondents divided into intervention and control groups, each consisting of 38 respondents, selected using a non-probability purposive sampling technique. The anxiety level was measured using the APAIS scale. Data analysis was conducted using the Wilcoxon test and Mann-Whitney U test. The results showed that before the intervention, most respondents in the intervention group experienced severe anxiety (78.9%), while in the control group it was 92.1%. After the audiovisual education was provided, anxiety levels in the intervention group decreased to mild anxiety (76.3%), whereas the control group mostly remained at moderate anxiety (55.3%). There was a significant difference in anxiety levels between the two groups ($p\text{-value} = 0.001 < 0.05$). In conclusion, audiovisual-based education is effective in reducing preoperative anxiety levels in patients undergoing spinal anesthesia at RSUD Kardinah Tegal.

Keywords: Spinal Anesthesia, Audiovisual Education, Anxiety, Preoperative.

INTRODUCTION

Surgical procedures are common medical interventions that are generally divided into three main phases, namely preoperative, intraoperative, and postoperative phases. Surgery is performed for diagnostic or therapeutic purposes when non-invasive treatments are no longer effective in managing a disease condition or injury (Hinkle, 2018). Along with the increasing demand for healthcare services, the number of surgical procedures worldwide continues to rise significantly. The World Health Organization (WHO, 2020) reported that approximately 165 million surgical procedures are performed each year globally, with more than 234 million patients admitted to hospitals.

In surgical practice, spinal anesthesia is one of the most widely used regional anesthesia techniques, particularly for lower extremity surgeries (Elisha et al., 2023). Although relatively safe, surgical procedures under anesthesia may still trigger psychological responses in patients, one of which is preoperative anxiety. Preoperative anxiety is an anticipatory emotional response to perceived threats to bodily integrity, life roles, or personal safety (Romero et al., 2017). The prevalence of preoperative anxiety is reported to be relatively high worldwide, ranging from 11% to 80%.

Unmanaged preoperative anxiety may lead to several negative outcomes, such as increased postoperative analgesic requirements, delayed recovery processes, and prolonged hospital stays (Rothroc, 2022). Factors influencing patient anxiety are diverse, including the level of knowledge, physical condition, family support, type of surgical procedure, and quality of communication with healthcare providers (Potter & Perry, 2019). Therefore, appropriate interventions are needed to reduce patient anxiety prior to surgical procedures.

Anxiety management can be carried out through both pharmacological and non-pharmacological approaches. Non-pharmacological approaches are increasingly preferred due to their safety and minimal side effects, including relaxation techniques, music therapy, aromatherapy, and distraction

therapy (Berman et al., 2016). In this regard, healthcare professionals, particularly anesthetic nurses or nurse anesthetists, play an essential role not only in the technical aspects of anesthesia but also in providing education and psychological support to patients (Elisha et al., 2023).

Health education is one of the effective non-pharmacological interventions in reducing patient anxiety. Educational media may include leaflets, posters, and audio-visual tools such as videos (Bastable, 2023). Video-based education is considered more effective because it delivers information through both visual and auditory channels, making it easier for patients to understand, especially in preoperative education contexts (Rothroc, 2022).

However, several studies have reported inconsistent findings regarding the effectiveness of video-based education in reducing preoperative anxiety. Maghalian et al. (2024) found that video education had only a small and statistically insignificant effect on reducing preoperative anxiety. Similarly, Kanyeki et al. (2022) reported no significant differences between the intervention and control groups in anxiety reduction.

A preliminary study conducted at RSUD Kardinah Tegal in May 2025 showed that out of 200 patients undergoing spinal anesthesia surgery, approximately 80 patients experienced moderate anxiety during the preoperative phase. Patients expressed concerns regarding the surgical procedure, anesthesia effects, and the risk of procedural failure. In addition, preoperative education was still limited to informed consent and had not yet utilized audio-visual media as an educational tool.

Based on these issues, innovation in preoperative education is needed to help reduce patient anxiety levels. Therefore, this study aims to analyze the effect of audio-visual-based education about spinal anesthesia on preoperative anxiety levels among surgical patients at RSUD Kardinah Tegal.

RESEARCH METHODS

This study used a quantitative approach with a quasi-experimental design to analyze the effect of audiovisual-based education on preoperative anxiety levels in patients undergoing spinal anesthesia. The quantitative approach was chosen because the data were numerical and analyzed statistically (Sugiyono, 2019). The research design employed was a pretest–posttest with control group design, involving two groups: an intervention group and a control group without full randomization. At the beginning of the study, both groups were assessed for their anxiety levels (pretest). The intervention group then received audiovisual education regarding spinal anesthesia, while the control group received standard education using anesthesia information forms. After the intervention, both groups were reassessed (posttest) to evaluate changes in anxiety levels (Sugiyono, 2019).

The study was conducted in the Wijaya Kusuma Bawah and Lavender Bawah wards at RSUD Kardinah Tegal from October 14 to October 25, 2025. This setting was chosen because it has a relatively high number of preoperative patients undergoing spinal anesthesia, with an average of 100 patients per month and approximately 80 patients experiencing preoperative anxiety based on preliminary data. The population of this study included all preoperative patients undergoing spinal anesthesia at RSUD Kardinah Tegal, with an average of 100 patients per month (Handayani, 2020; Sugiyono, 2019). The sample consisted of 76 respondents divided into two groups, namely 38 respondents in the intervention group and 38 respondents in the control group. The sampling technique used was non-probability purposive sampling, where participants were selected based on predetermined inclusion criteria (Sugiyono, 2019). The inclusion criteria included patients aged 17–65 years, willing to participate, undergoing spinal anesthesia, and classified as ASA 1–3, while exclusion criteria included emergency surgery patients and ASA 4–5 patients.

The study variables consisted of the independent variable, namely audiovisual-based education on spinal anesthesia, and the dependent variable, namely preoperative anxiety levels (Sugiyono, 2019). The instrument used to measure anxiety was the Amsterdam Preoperative Anxiety and Information Scale (APAIS), consisting of six items. The Indonesian version of APAIS has been tested for validity and reliability, showing a Cronbach's Alpha of 0.825 for the anxiety scale and 0.863 for

the information scale, indicating that the instrument is reliable and valid for use in research (Firdaus, 2014; Sugiyono, 2019).

Data in this study consisted of primary data obtained directly from respondents through questionnaires before and after the intervention, and secondary data obtained from medical records, including age, gender, surgical history, and ASA status (Sugiyono, 2019). Data analysis was performed through several stages, including editing, coding, data entry, cleaning, and tabulation using SPSS version 26 (Rukajat, 2018). Univariate analysis was used to describe respondents' characteristics, while bivariate analysis was used to test the effect of the intervention. Since the data were not normally distributed based on the normality test, the Wilcoxon test was used to analyze differences within groups (pretest and posttest), while the Mann–Whitney U test was used to compare differences between the intervention and control groups, with a significance level of $p < 0.05$ (Dahlan, 2015). Ethical considerations were also applied in this study, including informed consent, anonymity, confidentiality, and ethical clearance approval from the relevant ethics committee (Gusman et al., 2021).

RESULTS AND DISCUSSION

Research Results

Data collection was conducted from October 14–25, 2025 at RSUD Kardinah Tegal, Central Java. The study involved 76 preoperative patients undergoing spinal anesthesia, divided into two groups: intervention (n = 38) and control (n = 38) using non-probability purposive sampling. Data analysis included univariate and bivariate analysis.

Respondent Characteristics

Table 4.1 Distribution of Respondent Characteristics (n = 76)

Characteristics	Intervention (38) f (%)	Control (38) f (%)
Age		
17–25 years	3 (7.9%)	6 (15.8%)
26–45 years	30 (78.9%)	28 (73.7%)
46–65 years	5 (13.2%)	4 (10.5%)
Gender		
Male	10 (26.3%)	13 (34.2%)
Female	28 (73.7%)	25 (65.8%)
Surgical History		
Never operated	30 (78.9%)	32 (84.2%)
Previous surgery	8 (21.1%)	6 (15.8%)
ASA Status		
ASA 1	12 (31.6%)	14 (36.8%)
ASA 2	26 (68.4%)	24 (63.2%)

The data show that most respondents in both groups were aged 26–45 years. Females dominated both groups, with 73.7% in the intervention group and 65.8% in the control group. Most participants had no previous surgical experience, and the majority were classified as ASA II. This indicates that the two groups had relatively similar baseline characteristics.

Preoperative Anxiety Level of Spinal Anesthesia Patients Before and After Being Given Video in the Intervention Group at Kardinah Tegal Regional Hospital

Table 4.2 Anxiety Levels Before and After Video Education (Intervention Group)

Anxiety Level	Before f (%)	After f (%)
Mild	0 (0.0%)	29 (76.3%)
Moderate	8 (21.1%)	9 (23.7%)
Severe	30 (78.9%)	0 (0.0%)
Total	38 (100%)	38 (100%)

Before intervention, most patients (78.9%) experienced severe anxiety. After receiving audio-visual education, most patients shifted to mild anxiety (76.3%), showing a clear improvement in psychological condition.

Table 4.3 Mean Anxiety Score (Intervention Group)

Variable	N	Mean	SD	Min	Max
Pre-test	38	20.71	2.78	14	24
Post-test	38	9.89	3.01	7	17

The mean anxiety score significantly decreased from 20.71 to 9.89 after intervention. This indicates that video-based education was effective in reducing preoperative anxiety in patients undergoing spinal anesthesia.

Preoperative Anxiety Level of Spinal Anesthesia Patients Before and After Education Using the Anesthesia Information Form in the Control Group at Kardinah Tegal Regional Hospital

Table 4.4 Anxiety Levels Before and After Standard Education (Control Group)

Anxiety Level	Before f (%)	After f (%)
Mild	0 (0.0%)	3 (7.9%)
Moderate	3 (7.9%)	21 (55.3%)
Severe	35 (92.1%)	14 (36.8%)
Total	38 (100%)	38 (100%)

Before intervention, 92.1% of patients experienced severe anxiety. After receiving standard information via anesthesia consent forms, anxiety levels decreased slightly, with most patients moving to moderate anxiety (55.3%).

Table 4.5 Mean Anxiety Score (Control Group)

Variable	N	Mean	SD	Min	Max
Pre-test	38	21.82	1.85	17	24
Post-test	38	15.71	3.20	11	22

Although anxiety decreased from 21.82 to 15.71, the reduction was less significant compared to the intervention group, indicating limited effectiveness of standard written information.

The Effect of Pre- and Post-Operative Patient Education with Spinal Anesthesia on the Intervention Group and Control Group at Kardinah Tegal Regional Hospital

Table 4.6 Anxiety Score Changes (Intervention vs Control)

Group	Time	N	Mean	SD	Z	p-value
Intervention	Pre	38	20.71	2.78	-5.379	<0.001
	Post	38	9.89	3.01		
Control	Pre	38	21.82	1.85	-5.384	<0.001
	Post	38	15.71	3.20		

Both groups showed statistically significant changes ($p < 0.05$). However, the magnitude of reduction was much greater in the intervention group, indicating that audio-visual education had a stronger impact on reducing anxiety.

Differences in Anxiety Levels of Patients with Spinal Anesthesia before Education in the Intervention Group and Control Group

Table 4.7 Pre-intervention Anxiety Difference

Group	N	Mean Rank	Z	p-value
Intervention	38	34.54	-1.588	0.112
Control	38	42.46		

There was no significant difference between groups before intervention ($p = 0.112 > 0.05$), indicating both groups were comparable at baseline.

Table 4.8 Post-intervention Anxiety Difference

Group	N	Mean Rank	Z	p-value
Intervention	38	23.84	-5.821	<0.001
Control	38	53.16		

A significant difference was found after intervention ($p < 0.001$). The intervention group showed much lower anxiety levels compared to the control group, confirming that audio-visual education was significantly more effective in reducing preoperative anxiety.

Discussion

Age is one of the factors that influences a person’s level of anxiety. Anxiety can affect individuals across all age groups, although it is more commonly found in adults. A study by Purnamasari et al. (2024) reported that patients aged 26–45 years experienced the highest level of preoperative anxiety, with 18 respondents falling into this category. This is consistent with the present study, where the majority of respondents in both groups were also aged 26–45 years.

According to Ayaturahman (2024), increasing age is associated with greater emotional maturity and better coping ability in dealing with problems. However, adults are still vulnerable to anxiety due to high life responsibilities and psychological pressure. Nainggolan et al. (2022) also found that patients aged 26–40 years experienced higher levels of severe anxiety before spinal anesthesia procedures. Similarly, Wahyuni (2022) stated that younger patients tend to experience higher preoperative anxiety due to lower psychological readiness, while older individuals generally have better emotional control.

Based on these findings, the researcher assumes that individuals aged 26–45 years tend to experience higher preoperative anxiety because they are in a productive age phase with greater psychological and social responsibilities.

Gender is another important factor influencing anxiety levels. Nugroho (2020) stated that women are more likely to express emotions and therefore have a higher tendency to experience anxiety. Danu (2021) also explained that hormonal differences and brain sensitivity contribute to higher anxiety levels in females compared to males. Farrasia (2023) added that fluctuations in estrogen levels can affect emotional stability, especially during menstruation or menopause, increasing vulnerability to anxiety.

The researcher assumes that female patients experience higher preoperative anxiety due to both hormonal and psychosocial factors, as well as greater emotional sensitivity toward medical procedures.

Previous surgical experience also plays a significant role in anxiety levels. Patients undergoing surgery for the first time tend to experience higher anxiety due to fear of pain and uncertainty about the procedure. In contrast, patients with prior surgical experience tend to be more mentally prepared and have better coping mechanisms (Leopold, 2020). Paracima (2024) also emphasized that previous surgical experience improves both psychological and physical readiness. The researcher assumes that patients with no previous surgery experience have higher anxiety because they lack familiarity with the procedure, whereas experienced patients are more aware of what to expect, reducing fear and uncertainty (Amalia et al., 2022).

ASA (American Society of Anesthesiologists) physical status is also an important factor in determining anesthesia risk and anxiety levels. Razak (2020) stated that ASA classification reflects a patient’s physical condition before anesthesia, which is closely related to perioperative outcomes. Kumar et al. (2019) found that higher ASA status is associated with increased preoperative anxiety due to higher perceived risk and complications. Harms (2023) also identified ASA status as one of several risk factors influencing anxiety levels. The researcher assumes that higher ASA status increases anxiety because patients perceive greater health risks and potential complications.

The results of this study show that video-based education significantly reduces preoperative anxiety. This is consistent with Nainggolan et al. (2022), who found a significant reduction in anxiety levels after video education on spinal anesthesia procedures ($p < 0.05$). Similar findings were reported

by Tamah et al. (2019), who stated that good preoperative information significantly reduces patient anxiety levels. Psychologically, severe anxiety is characterized by excessive fear, inability to concentrate, restlessness, negative thoughts, and physiological symptoms such as increased heart rate, blood pressure, and sweating (Kaplan et al., 2017). Meanwhile, mild anxiety allows patients to remain calm and able to process information effectively (Stuart, 2016).

Audiovisual media improves patient understanding by presenting clear and structured information. Increased knowledge reduces uncertainty and improves psychological readiness. Ni (2024) stated that audiovisual education significantly enhances self-efficacy and reduces preoperative anxiety. The researcher assumes that video-based education is more effective because it provides visual and auditory stimulation, making information easier to understand compared to conventional methods. This reduces uncertainty and improves patient readiness.

Daryanto (2022) also reported similar findings, where anxiety levels decreased significantly after receiving anesthesia information. According to Notoatmodjo (2018), health education improves knowledge and psychological preparedness, while Novitarum (2025) stated that clear information reduces perceived threat and anxiety responses. The researcher further assumes that audiovisual education is more effective than written information because it engages multiple senses, improves comprehension, and reduces fear of the unknown.

The Wilcoxon test results showed a significant reduction in anxiety levels in both groups, although the control group still experienced severe anxiety after intervention. Chiu et al. (2023) found that audiovisual education significantly reduces preoperative anxiety compared to conventional education. Lorica et al. (2025) also reported similar findings in elective surgery patients ($p < 0.05$). Video-based education is considered more effective because it delivers information in a more engaging and understandable format (Susanto, 2023). Nugroho (2020) also stated that audiovisual education helps patients better understand spinal anesthesia procedures, increasing readiness for surgery.

The researcher assumes that the greater reduction in anxiety in the intervention group is due to better information delivery through audiovisual media, which reduces uncertainty and improves psychological comfort. In contrast, written education in the control group is less effective in providing a clear procedural understanding, resulting in higher remaining anxiety levels.

CONCLUSION

Based on the study results, respondents in both groups were predominantly aged 26–45, female, had no history of surgery, and the majority had an ASA physical status of 2. Before the intervention, most patients in both the intervention and control groups were in the severe anxiety category. After receiving education, the intervention group experienced a significant reduction in anxiety to mild, while the control group experienced a significant reduction in anxiety. Statistical tests showed a significant effect of audiovisual-based education on reducing preoperative patient anxiety levels with a p-value of 0.001 (<0.05). There was no significant difference between the two groups before the intervention ($p=0.112$), but there was a significant difference after the intervention ($p=0.001$), indicating that audiovisual-based education was more effective than education using an anesthesia information form.

The results of this study are expected to inform Kardinah Tegal Regional Hospital's consideration in integrating audiovisual-based education as part of preoperative care standards to help reduce patient anxiety. Patients are expected to be more actively engaged in understanding information related to anesthesia procedures, thereby improving their psychological preparedness before surgery. For educational institutions, the results of this study can serve as a reference in developing learning about non-pharmacological interventions for pre-operative patients. Meanwhile, future researchers are advised to expand the sample size, involve more healthcare facilities, and develop more innovative

educational media such as interactive simulations or virtual reality-based technology to increase the effectiveness of reducing patient anxiety.

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