



THE EFFECTIVENESS OF CIREBON CULTURE–THEMED AUDIOVISUAL DISTRACTION ON POSTOPERATIVE PAIN AMONG LAPAROTOMY PATIENTS

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ABSTRACT

Postoperative pain following laparotomy is a common clinical problem that may hinder patient recovery if not adequately managed. In addition to pharmacological therapy, non-pharmacological interventions such as audiovisual distraction have been shown to reduce pain perception. Culturally based approaches may further enhance the effectiveness of distraction through emotional familiarity and psychological relaxation. This study aimed to analyze the effectiveness of Cirebon culture–themed audiovisual distraction on postoperative pain among laparotomy patients at Gunung Jati Regional Hospital, Cirebon. A quasi-experimental study with an equivalent pretest–posttest control group design was conducted. A total of 72 postoperative laparotomy patients were recruited using consecutive sampling and allocated to an intervention group (n = 36) and a control group (n = 36). Pain intensity was measured using the Numeric Rating Scale (NRS). Data were analyzed using the Wilcoxon test and Mann–Whitney test, with calculation of effect size. The intervention group demonstrated a statistically significant reduction in pain intensity after receiving Cirebon culture–themed audiovisual distraction (median pre-test = 3.0; median post-test = 2.0; $p < 0.001$). In contrast, the control group showed no significant change in pain intensity ($p = 0.206$). The Mann–Whitney test revealed a significant difference in pain reduction between groups ($p < 0.001$), with a large effect size ($r = 0.7$). Cirebon culture–themed audiovisual distraction effectively reduced postoperative pain among patients undergoing laparotomy, supporting its effectiveness as a culturally sensitive non-pharmacological nursing intervention.

Keywords: audiovisual distraction; cirebon culture; laparotomy; nursing; pain

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INTRODUCTION

Laparotomy is a major surgical procedure frequently associated with moderate to severe postoperative pain, especially within the first 24–48 hours after surgery (Wibowo et al., 2022). Poorly managed postoperative pain can delay mobilization, increase psychological distress, prolong hospital stay, and reduce quality of life (Kushariyadi & Pribadi, 2024; Yadi et al., 2018). Pharmacological therapies such as opioid and non-opioid analgesics remain the cornerstone of postoperative pain management. Nevertheless, these agents are often accompanied by adverse effects including nausea, vomiting, constipation, respiratory depression, and the risk of dependency (Bassetti et al., 2019; Wahyuni et al., 2024). These limitations emphasize the importance of non-pharmacological interventions as complementary strategies in pain management.

Audiovisual distraction is a cognitive-behavioral intervention that reduces pain perception by shifting attention away from painful stimuli through combined visual and auditory inputs (Khatony et al., 2020). Previous studies have reported its effectiveness in postoperative and procedural pain reduction (Çakir & Evirgen, 2021; Okutan & Saritaş, 2024). However, most interventions employ generic content without considering patients' cultural backgrounds. Culturally congruent interventions may enhance emotional comfort, relaxation, and engagement, thereby strengthening pain modulation (O'Donnell et al., 2025; Spisak et al., 2020). Cirebon culture, with its distinctive

traditional music, visual heritage, and symbolic meanings, may provide a familiar and comforting stimulus for local patients. Research examining Cirebon culture-themed audiovisual distraction in postoperative pain management remains limited, prompting the need for this study. This study aimed to analyze the effectiveness of Cirebon culture-themed audiovisual distraction in reducing postoperative pain among laparotomy patients at Gunung Jati Regional Hospital, Cirebon.

METHOD

Study Design

This study was conducted in two phases. The first phase involved the development of Cirebon culture-themed audiovisual distraction media using a Research and Development (R&D) approach with a prototyping model. The second phase evaluated the effectiveness of the developed media using a quasi-experimental design with an equivalent pretest–posttest control group.

Setting and Participants

The study was conducted at Gunung Jati Regional Hospital, Cirebon. Participants were postoperative laparotomy patients aged ≥ 18 years, fully conscious, able to communicate, and willing to participate. Patients with visual or hearing impairments, severe postoperative complications, or refusal to participate were excluded. A total of 72 respondents were recruited using consecutive sampling and divided into an intervention group (36 patients) and a control group (36 patients).

Intervention

The intervention group received Cirebon culture-themed audiovisual distraction for approximately 20 minutes using audiovisual devices (tablet or smartphone with headset/speaker). The content included visual elements of Cirebon cultural heritage, traditional arts, and calming traditional music. The control group received standard postoperative care without audiovisual distraction.

Data Collection

Pain intensity was measured using the Numeric Rating Scale (NRS) before (pre-test) and after (post-test) the intervention.

Data Analysis

The Wilcoxon test was used to assess within-group differences in pain intensity, while the Mann–Whitney test was used to compare pain reduction between groups. Effect size (r) was calculated to determine the magnitude of the intervention effect.

Ethical Consideration

This study was approved by the Health Research Ethics Committee of Gunung Jati Regional Hospital. Written informed consent was obtained from all participants.

RESULT

Respondent Characteristics

A total of 72 respondents participated in this study, consisting of 36 respondents in the intervention group and 36 respondents in the control group. Statistical testing of all respondent characteristic variables showed p -values > 0.05 , indicating that the intervention and control groups were homogeneous and therefore appropriate for further comparative analysis of the intervention effect.

Table 1.
Characteristics of Postoperative Laparotomy Patients

Variable	Intervention Group (n = 36)	Control Group (n = 36)	p-value
	f	%	
Age (years)			
18–24	10	27.8	9
25–44	11	30.5	13
45–59	6	16.7	5
>59	9	25.0	9
Education Level			
Primary school	3	8.3	6
Junior high school	12	33.4	7
Senior high school	21	58.3	23
Type of Anesthesia			
General	34	94.4	36
Spinal	2	5.6	0
Type of Surgery			
Common bile duct (CBD) stenosis	16	44.4	14
Cholelithiasis	11	30.6	14
Colon cancer	2	5.6	2
Rectal cancer	1	2.8	2
Cecal cancer	1	2.8	1
Obstructive ileus	2	5.6	1
Perforated appendicitis	3	8.3	2
Sex			
Male	9	25.0	5
Female	27	75.0	31

Pain Intensity Before and After the Intervention

Table 2.
Changes in Pain Intensity at Pre-test and Post-test

Group	Median (min–max) Pre-test (n = 36)	Median (min–max) Post-test (n = 36)	p-value (Wilcoxon test)
Intervention	3.0 (2.00–4.00)	2.0 (1.00–3.00)	< 0.001
Control	3.0 (2.00–4.00)	3.0 (2.00–4.00)	0.206

Based on the Wilcoxon test results presented in Table 2, a statistically significant reduction in pain intensity was observed in the intervention group after treatment, indicating that the intervention was effective in reducing postoperative pain among laparotomy patients. In contrast, the control group showed no statistically significant difference between pre-test and post-test measurements. This finding indicates that, without a specific intervention, patients' pain intensity tended to remain unchanged during the observation period.

Comparison of Pain Intensity Reduction Between Groups

Table 3.
Comparison of Pain Reduction Between the Intervention and Control Groups

Measurement	Intervention Group			Control Group			p-value	Effect size
	Mean (SD)	Median	Mean rank	Mean (SD)	Median	Mean rank		
Pre-test	3.33 (0.535)	3.0	37.79	3.25 (0.554)	3.0	35.21	0.537	
Post-test	2.25 (0.649)	2.0	24.63	3.14 (0.487)	3.0	48.38	< 0.001	0.7
Pre–post	1.08 (0.554)	1.0	23.15	0.11 (0.522)	0.0	49.85	< 0.001	

Based on the Mann–Whitney test results in Table 3, there was no significant difference in baseline pain intensity between the intervention and control groups prior to the intervention, indicating comparable initial conditions. After the intervention, the intervention group experienced a significantly greater reduction in pain intensity compared to the control group. The difference in pain reduction before and after treatment was also statistically significant, confirming that the

decrease in pain was primarily attributable to the intervention. The large effect size indicates that Cirebon culture-themed audiovisual distraction had a strong clinical impact on reducing postoperative pain in laparotomy patients.

DISCUSSION

The results of this study demonstrated that the provision of Cirebon culture-themed audiovisual distraction significantly reduced postoperative pain intensity among laparotomy patients. The greater reduction in pain observed in the intervention group compared to the control group confirms the effectiveness of this non-pharmacological intervention as a complementary strategy in postoperative pain management.

From a theoretical perspective, these findings can be explained by the Gate Control Theory of Pain, which posits that non-noxious sensory stimuli—such as visual and auditory inputs—can inhibit the transmission of pain impulses to the central nervous system (Liu et al., 2023; Rai et al., 2013). Audiovisual distraction shifts patients' cognitive focus away from painful sensations toward more pleasant stimuli, thereby reducing pain perception.

The use of Cirebon culture-based content provides additional advantages compared to generic audiovisual distraction. Familiar local cultural elements, including palace imagery, traditional dance, and traditional music, can evoke feelings of comfort, safety, and emotional closeness. This approach aligns with the principles of transcultural nursing proposed by Leininger, which emphasize that culturally sensitive nursing care can enhance adaptive responses and improve clinical outcomes (Agunwa et al., 2018; Guntzville, 2017).

The findings of this study are consistent with previous research reporting that audiovisual distraction is effective in reducing postoperative and procedural pain (Alam et al., 2016; Chow, 2021). However, this study offers novelty by integrating local cultural elements into the distraction media an approach that remains underexplored in the context of medical-surgical nursing. Therefore, Cirebon culture-themed audiovisual distraction can be considered a holistic, non-invasive, cost-effective, and easily applicable nursing intervention, particularly in healthcare settings where patients have strong cultural ties. This intervention has the potential to enhance patient comfort and support comprehensive postoperative pain management.

CONCLUSION

Cirebon culture-themed audiovisual distraction is effective in reducing postoperative pain among laparotomy patients. This intervention is non-invasive, culturally sensitive, easy to implement, and has a strong clinical effect.

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