

Effectiveness of Video - Assisted Preoperative Instructions on Postoperative Pain and Anxiety among Women Undergoing Elective Caesarean Section in Selected Hospitals, Bengaluru

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Abstract: ***Background:** Patient preparation for any surgical procedure encompasses preoperative education, a crucial and widespread element. It is believed that the administration of preoperative instruction, incorporating a patient understanding of perioperative procedures, anticipated changes following surgery, patient contentment, analgesic utilisation, medication administration techniques, coping mechanisms for physical challenges, independence in mobility, and readiness for discharge, influences their behaviour positively in that context. Given its significant medical impact, implementing preoperative video - assisted instructions is particularly crucial for preventing postoperative complications. **Methodology:** A quasi - experimental post - test - only control group design employed a quantitative evaluative approach. The study used three instruments: sample characteristics, a numerical pain intensity rating scale, and a modified Hamilton anxiety rating scale. The sample included 40 women undergoing elective caesarean section, selected through purposive sampling technique. Descriptive and inferential statistics were used for data analysis. **Results:** The study found that video - assisted preoperative instructions effectively reduced postoperative pain and anxiety in women undergoing elective caesarean sections. The study suggests expanding its scope to a larger scale with a comprehensive pre and postoperative care approach, including exercises, diet, hygiene, breastfeeding, rest, sleep, and newborn care.*

Keywords: Video - assisted preoperative instructions, Postoperative pain, Postoperative anxiety, Women undergoing elective cesarean section.

1. Introduction

A Caesarean section (CS) is a frequently performed surgical procedure for obstetric patients, crucial for both maternal and fetal well - being in cases of pregnancy and birth complications. Preoperative education addresses the patient's informational needs about the surgical process, potentially alleviating fears¹. Hospitalisation, especially for surgery, can induce significant distress and anxiety in patients. Preoperative education is crucial for surgical patients, as indicated by nursing research spanning the last three decades². Numerous studies indicate that a mother's desire for a caesarean section is often rooted in the fear of childbirth. Therefore, anxiety related to childbirth is proposed as a primary factor contributing to the rise in elective caesarean sections³. Video - assisted preoperative instructions can potentially alleviate pain and anxiety, enhancing a mother's ability to breastfeed effectively. Ensuring safe and effective pain relief is crucial. Preoperative anxiety heightens the likelihood of moderate to severe postoperative pain in women undergoing cesarean sections⁴.

Video - assisted preoperative instructions, a cost - effective and non - invasive non - pharmacological technique, have been demonstrated to reduce both postoperative pain and anxiety⁵. One highly effective approach is video - assisted teaching, offering a clear understanding of the subject. Nurses can introduce video - assisted teaching during pre -

procedure care to reduce anxiety in patients and their spouses.⁶

2. Materials and Methods

Objectives

- To evaluate the effectiveness of video - assisted preoperative instructions on postoperative pain and anxiety among women undergoing elective caesarean section between experimental and control groups.
- To determine the correlation between postoperative pain and anxiety scores of women undergoing elective caesarean section in experimental and control groups.
- To determine the association between postoperative pain and anxiety scores of women undergoing elective caesarean section with selected sample characteristics in experimental and control groups.

Hypotheses

At 0.05 level of significance

- H₁: there will be a statistically significant difference in postoperative pain after video - assisted preoperative instructions among women undergoing elective caesarean section between experimental and control groups as measured by the numerical pain intensity rating scale.
- H₂: there will be a statistically significant difference in postoperative anxiety after video - assisted preoperative instructions among women undergoing elective

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caesarean section between experimental and control groups as measured by the Modified Hamilton Anxiety Rating Scale (HAM - A).

- H₃: there will be a statistically significant correlation between the postoperative pain and anxiety scores of women undergoing elective caesarean section in experimental and control groups.
- H₄: there will be a statistically significant association between the postoperative pain scores of women undergoing elective caesarean section with selected sample characteristics in experimental and control groups.
- H₅: there will be a statistically significant association between the postoperative anxiety scores of women undergoing elective caesarean section with selected sample characteristics in experimental and control groups.

Operational Definitions

- **Video - assisted preoperative instructions:** Systematic and organised video clips taken by the researcher on prior - surgery information to the women undergoing elective caesarean section for 30 - 40 minutes, which includes orientation to the operation room and procedures, pre - surgical preparation, medications, immediate post - operative care, including deep breathing exercises, diet, hygiene, breastfeeding, medications, rest, sleep and newborn care.
- **Post - operative pain:** The unpleasant feeling experienced by the women after caesarean section as measured by a numerical pain intensity rating scale.
- **Post - operative Anxiety:** An undesirable state of tension that affects both the mind and body of the women after caesarean section as measured by the Modified Hamilton Anxiety Rating Scale (HAM - A).
- **Women undergoing elective cesarean section:** Females after 37 completed weeks of gestation going through a planned surgical procedure to deliver their babies through an incision made in the abdominal and uterine walls.

3. Methodology

The study was conducted in 2023 at a 400 - bed multispecialty hospital accredited by the National Accreditation Board for Hospitals (NABH) India. The duration of data collection, including pre - test and post - test, is two weeks. The research design for the study was a quasi - experimental post - test - only control group design with a quantitative evaluative approach employed on women with a gestational age of 37 weeks undergoing elective caesarean section. Forty subjects were selected via purposive sampling based on inclusion and exclusion criteria. Sample characteristics were collected using a structured interview schedule. The experimental group received a 30 - minute video - assisted preoperative instruction intervention covering orientation to the operation room, pre - operative preparation, medications, immediate post - operative care, and various aspects of postoperative well - being. The control group received routine care only. A post - test was conducted daily from day one to day three, using the Numerical Pain Intensity Rating Scale to assess postoperative pain. Post - operative anxiety was evaluated

on the first - day post - caesarean section using the Modified Hamilton Anxiety Rating Scale (HAM - A) for both groups. The collected data underwent analysis using appropriate descriptive and inferential statistics, with table results.

4. Results and Discussion

Section – I Sample characteristics:

In the experimental group, mothers' demographics revealed that 25% were aged 19 - 25, 60% were between 25 - 30, and 20% were in the 30 - 35 age group. About 50% identified as Hindu, 40% as Muslim, and 10% as Christian. Education - wise, 15% completed primary school, 30% finished high school, 20% completed pre - primary school, 20% had a diploma, and 25% were graduates or higher. Regarding family structure, 60% were from nuclear families, and 40% from joint families.

Employment status showed that 25% were private employees, 15% were government employees, and 60% were homemakers. Income distribution indicated 15% earned below Rs.20, 000, 40% between Rs.20, 001 - 30, 000, 15% between Rs.30, 001 - 40, 000, and 30% Rs.40, 000 and above. Family size - wise, 35% had one child, and 65% had more than one. Regarding previous surgery, 65% had undergone previous surgery, and 35% had not. Parity - wise, 35% were primiparas, and 65% were multiparas. Information sources included 5% from media, 35% from family and friends, and 60% from health personnel. The main reason for previous caesarean sections was cited by 65% of mothers, with 10% due to breech presentation, 5% to cephalopelvic disproportion, 15% to twin pregnancy, and 5% based on personal preference. About 75% of mothers had support from their husbands, while 25% had support from their mothers.

In the control group, 40% of mothers were aged 19 - 25, 40% were between 25 - 30, and 20% were in the 30 - 35 age group. Religion - wise, 40% identified as Hindu, 55% as Muslim, and 5% as Christian. Regarding education, 15% completed primary school, 25% completed high school, 15% finished pre - university, 20% completed a diploma, and 25% had graduated or held higher qualifications. Family structure - wise, 70% were from nuclear families, and 30% were from joint families. Employment - wise, 15% were self - employed, 20% were privately employed, 15% were government - employed, and 60% were homemakers. Income distribution showed 20% earned below Rs.20, 000, 40% earned between Rs.20, 001 - 30, 000, 5% earned between Rs.30, 001 - 40, 000, and 35% earned Rs.40, 000 and above. Regarding family size, 70% had only one child, and 30% had more than one. Regarding previous surgery, 30% had undergone previous surgery, and 70% had not. Parity - wise, 60% were primiparas, and 40% were multiparas. Information sources included 40% from media, 25% from family and friends, and 35% from health personnel. Reasons for previous caesarean sections included 10% due to elderly primi, 30% due to a previous caesarean section, 15% due to breech presentation, 15% due to cephalopelvic disproportion, 5% due to twin pregnancy, 10% due to bad obstetrical history, and 15% due to personal preference. About 60% had support from their husbands,

while their mothers supported 40%. Both the groups were homogenous at baseline.

Section II: Description of post - operative pain and anxiety scores after video - assisted Preoperative instructions among women who have undergone elective caesarean section in experimental and control groups.

In the experimental group, the majority (60%) of women who underwent elective caesarean sections experienced mild pain, 35% had moderate pain, and 5% reported severe pain. In contrast, in the control group, 25% reported mild pain, a little over half (55%) experienced moderate pain, and 20% had severe pain. In the experimental group, the majority (90%) of women who underwent elective caesarean sections experienced mild anxiety, 10% had moderate anxiety, and none had severe anxiety. In contrast, in the control group, 25% reported mild anxiety, the majority (60%) experienced moderate anxiety, and 15% had severe anxiety.

The above findings were supported by a quasi - experimental study of 100 pregnant women enrolled in the antenatal outpatient clinic at Mansoura University Hospital. Data was collected using a numerical pain rating scale and State - Trait Anxiety Inventory. The study found that pregnant women who received video - assisted education experienced lower mean pain scores post - online education than those pre - online education (p=0.05). This difference was highly statistically significant. Additionally, the study found that anxiety levels among expectant women were significantly different post - online education compared to pre - online education (p=0.001). Pre and post - education, there was a significant positive relationship between the pregnant women's state anxiety levels and pain intensity⁷.

Section III: Description of post - operative pain and anxiety after video - assisted preoperative instructions among women who have undergone elective caesarean section between experimental and control group

Table 1: Overall Mean, SD, and independent 't' value of postoperative pain scores following video - assisted preoperative instructions among women who have undergone elective caesarean section between experimental and control group, n₁=20;

n ₂ =20						
Group	Mean	Mean Difference	SD	Independent t - Value	df	Sig. (p - value)
Experimental Group	4.9	1.1	1.1	2.755	38	0.008*
Control Group	5.1		1.5			

Note: * refers to a significant difference at 95% CI.

The table data indicates that the average postoperative pain score in the experimental group (4.0) is lower than in the control group (5.1). The mean difference is 1.1. The calculated independent t - value is 2.755, exceeding the table value (t₃₈= 1.960) at the 0.05 significance level.

Consequently, the research hypothesis H₁ is accepted, affirming a statistically significant difference in postoperative pain following video - assisted preoperative instructions among women undergoing elective caesarean sections between the experimental and control groups.

Table 2: Overall Mean, SD and independent 't' value of post - operative anxiety scores following video - assisted preoperative instructions among women who have undergone elective caesarean section between experimental and control group, n₁=20; n₂=20

Group	Mean	Mean Difference	SD	t - Value	df	Sig. (p - value)
Experimental Group	23.4	14.6	4.9	7.593	38	0.0001*
Control Group	38		7.1			

Note: * refers to a significant difference at 95% CI.

The table data shows that the average postoperative anxiety score in the experimental group (23.4) is lower than in the control group (38.0). The mean difference is 14.6. The calculated independent t - value is 7.593, exceeding the table value (t₃₈ = 1.960) at the 0.05 significance level. Therefore, research hypothesis H₂ is accepted, indicating a statistically significant difference in postoperative anxiety following video - assisted preoperative instructions among women undergoing elective caesarean sections between the experimental and control groups.

Comparatively, in the control group, the pain scores are higher across all hour intervals, which signifies the effectiveness of video - assisted preoperative instructions.

The present study findings under section II are supported by a randomised controlled trial conducted among eighty patients scheduled for caesarean section at a tertiary - level obstetric centre, anaesthesia and Intensive Care Unit, Department of Clinical and Surgical Sciences, University of the West Indies, San Fernando. Both groups were equally matched at baseline, and a statistically significant anxiety reduction measured using VAS - A was seen in the intervention group vs. the control group (6 vs.4.6, p = 0.018). However, state - trait anxiety measured using STAI was not significantly lower in the intervention vs control group (44 vs 46, p = 0.99). VAS - A immediately after looking at the video was also not significantly different (5 vs.4, p = 0.323) from the control group. Maternal satisfaction was also higher in the intervention group (113 vs.104.5, p = 0.015). The use of a straightforward

Table 3: Mean and SD of postoperative pain scores at 0 hours, 24 hours and 48 hours following video - assisted preoperative instructions among women who have undergone elective caesarean section in experimental and control groups, n₁=20; n₂=20

Group	Maximum Score	Mean ± SD		
		0 Hour	24 Hours	48 Hours
Experimental group	10	6.6 ±0.9	3.8±1.2	1.5±1.5
Control group		7.5±1.3	4.9±1.6	2.9±1.9

educational anaesthetic video may be associated with reduced anxiety and improved maternal satisfaction in patients scheduled for elective cesarean section under regional anesthesia⁸.

Section IV: Correlation between postoperative pain and anxiety scores among women who have undergone elective caesarean section in experimental and control groups

Table 6: Correlation between Pain and Anxiety scores in the experimental and control groups
n₁=20; n₂=20

Variables	Experimental group (n ₁)			Control group (n ₂)		
	r - value	Sig. test	Inference	r - value	Sig. test	Inference
Postoperative pain and anxiety	0.63	0.002	Moderate positive correlation	0.48	0.032	Low positive correlation

In the experimental group, a moderate positive correlation exists between postoperative pain and anxiety scores (r=0.63) and in the control group, a low positive correlation exists between pain and anxiety scores (r=0.48). There is a statistically significant correlation between the postoperative pain and anxiety scores of women undergoing elective caesarean section in experimental and control groups.

A randomised clinical trial in the surgery wards of educational hospitals in Mashhad, Iran supports the above findings. Hundred and fifty patients were randomly assigned into three groups: education, distraction, and control. The education and distraction groups watched two five - minute animations and three 360 - degree images of nature using virtual reality (VR) glasses two hours before and four hours after the surgery, respectively. On the other hand, the control group received routine care. Anxiety was measured using Spielberger's State Anxiety Inventory before and half an hour after the intervention. Moreover, the pain was measured using the visual analogue scale and McGill Pain Questionnaire. The result of the study showed a significant reduction in the two VR groups regarding the preoperative anxiety mean scores compared with the control group (p <.001). Furthermore, a significant reduction was observed in postoperative pain scores of patients in the two intervention groups compared with the control group (p =.001). The VR approaches of patient education and distraction equally decreased preoperative anxiety and postoperative pain in patients undergoing Caesarean section⁹.

Section V: Association between sample characteristics and postoperative pain scores among women undergoing elective caesarean section in the experimental and control groups

The chi - square values computed for postoperative pain scores and selected sample characteristics in the experimental group were below their respective table values. Therefore, H₄ is rejected, indicating no statistically significant association between postoperative pain in women undergoing elective caesarean sections and selected sample characteristics in the experimental group.

In the control group, the chi - square values for postoperative pain scores and selected sample characteristics were mostly below their respective table values, except for the number of children ($\chi^2 = 15.67$), previous surgery ($\chi^2 = 15.67$), parity ($\chi^2 = 10.909$), sources of information regarding preoperative instructions ($\chi^2 = 15.657$), and the member who supported during delivery ($\chi^2 = 6.268$), which exceeded their corresponding table values. Therefore, Hypothesis (H₄) is accepted, indicating a statistically significant association between postoperative pain scores in

women undergoing elective caesarean sections and selected sample characteristics, including number of children, previous surgery, parity, sources of information regarding preoperative instructions, and the member who supported during delivery. At the same time, H₄ is rejected for the remaining sample characteristics.

Section V: Association between sample characteristics and anxiety scores among women who have undergone elective caesarean section in the experimental and control groups

In the experimental group, the computed chi - square value for postoperative anxiety scores and selected sample characteristics was lower than their respective table values, except for the source of information regarding preoperative instructions ($\chi^2=10.476$) and the reason for caesarean section ($\chi^2= 14.444$), which exceeded their corresponding table values. As a result, Hypothesis (H₅) is accepted, indicating a statistically significant association between postoperative anxiety scores in women who have undergone elective caesarean sections and selected sample characteristics, precisely the source of information regarding preoperative instructions and the reason for caesarean section. H₅ is rejected for the remaining sample characteristics.

In the control group, the computed chi - square value for postoperative anxiety scores and selected sample characteristics was lower than their respective table values, except for the number of children ($\chi^2= 8.253$) and previous surgery ($\chi^2=8.253$), which exceeded their corresponding table values. Therefore, H₅ is accepted, indicating a statistically significant association between postoperative anxiety scores in women undergoing elective caesarean sections and selected sample characteristics, precisely the number of children and previous surgery. H₅ is rejected for the remaining sample characteristics.

5. Nursing Implications

Nursing Practice:

- The incidence of postoperative complications is on the rise due to insufficient knowledge, potentially resulting in heightened levels of pain and anxiety.
- Video - assisted preoperative instructions have proven highly efficient and manageable for patients undergoing surgical procedures. They contribute to cost reduction in hospital stays, minimise postoperative complications, and enhance overall satisfaction and psychological well - being.

Nursing Education:

- It is essential to comprehend theory and practice, highlighting their crucial roles in nursing education. The research underscores the importance of encouraging student nurses to cultivate observational skills.
- Additionally, the study suggests the necessity for comprehensive training of healthcare professionals in properly administering video - assisted preoperative instructions. This includes guidance on preoperative preparation, medication, and immediate postoperative care, encompassing deep breathing exercises, diet, hygiene, breastfeeding, rest, sleep, and newborn.

Nursing Administration:

- Nurse administrators should create in - service education initiatives on preoperative instructions.
- Regular showcasing of the video in the preoperative unit and distributing relevant content through posters, pictures, pamphlets, models, and flashcards should be organised in hospitals and community centres.

Nursing Research

- The study outcomes provide a foundation for future extensive research by student nurses.
- Nurse researchers have the opportunity to investigate pain and anxiety levels post video - assisted preoperative instructions in women undergoing elective caesarean sections, utilising tools such as the numerical pain intensity rating scale and Modified Hamilton Anxiety Rating scale (HAM - A).
- Non - pharmacological approaches offer the potential for effectively managing pain and anxiety, thereby enhancing the overall physical and mental well - being of women undergoing caesarean sections.

6. Limitations of the Study

- The smaller sample size limits the generalisation of the study findings.
- The study was limited to only elective caesarean mothers admitted to the selected Hospital.
- In this study, the video - assisted preoperative instructions were used only to reduce pain and anxiety among women undergoing caesarean section, whereas the knowledge and practical aspects were not evaluated.

7. Recommendations

- A similar study can be replicated on a larger sample to generalise the findings.
- A study can assess the awareness, attitude and practice of care of newborns and breastfeeding among postoperative mothers, and results can be compared.
- A comparative study can also be done between normal vaginal delivery mothers and elective caesarean section mothers.
- A retrospective study can be conducted on the rising caesarean section rates to identify the other risk factors.
- A study can be conducted on a large scale with multidimensional perspectives of pre and postoperative care, exercises, diet, hygiene, breastfeeding, rest, sleep and newborn care.

8. Conclusion

The study concluded that Video - assisted preoperative instructions effectively reduced postoperative pain and anxiety in women undergoing elective caesarean section. The findings indicate a moderate positive correlation ($r=0.63$) between postoperative pain and anxiety in the experimental group and a low positive correlation ($r=0.48$) between postoperative pain and anxiety scores after video - assisted preoperative instruction in women who underwent elective caesarean sections. The study suggests the efficacy of video - assisted preoperative instructions in alleviating postoperative pain and anxiety. In the control group, higher pain scores were observed across all hourly intervals, emphasizing the effectiveness of video - assisted preoperative instructions.

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Conflict of Interest: Nil

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