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Original Article

Anaesthesia Section

# Effect of Preoperative Counselling on Intraoperative and Postoperative Satisfaction among Pregnant Women Undergoing LSCS in a Tertiary Care Centre in Manipur, India: A Quasi-experimental Study

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## ABSTRACT

**Introduction:** For optimal maternal outcomes during Caesarean Section (CS) under spinal anaesthesia, proper counselling regarding the intraoperative and postoperative effects of spinal anaesthesia is required to enhance postoperative patient satisfaction.

**Aim:** The present study aimed to assess the effects of preoperative counselling on intraoperative and postoperative anxiety, fear, and other physiological responses associated with spinal anaesthesia. Additionally, it aimed to determine the level of perioperative satisfaction among patients during anaesthesia and surgery.

**Materials and Methods:** In this quasi-experimental study, a total of 214 American Society of Anaesthesiologists (ASA) physical status II patients scheduled for elective Lower Segment Caesarean Section (LSCS) were randomly assigned to either group A or group B. Group A received preoperative counselling about intraoperative events and postoperative care, along with routine pre-anaesthetic clinic assessment. Group B only underwent routine pre-anaesthetic clinic assessment. Intraoperative and postoperative satisfaction were assessed using the Visual Analogue Score (VAS), and physiological responses such as heart rate, blood pressure, and oxygen saturation were monitored. Statistical analysis was performed using SPSS version 16.0, and descriptive statistics, Chi-square test, and t-test were used. A p-value <0.05 was considered significant.

**Results:** The results showed that the mean age in group A was 28.7±5.1, while in group B it was 27.54±5.0. In group A, 70% of patients were multiparous, compared to 48.6% in group B, with a p-value >0.05. The majority of patients in both groups were homemakers, with 99.1% in group A and 86.9% in group B. The distribution of VAS scores indicated that no pain and mild pain were more prevalent in the study group, while moderate pain was more common in the control group, which was statistically significant. Therefore, pain was reduced in the preoperative counselling group, and overall patient satisfaction was higher in the counselling group due to guidance throughout the anaesthetic and surgical procedures, leading to better anxiety and haemodynamic control. The distribution of patient satisfaction indicated that all patients reported reduced fear and anxiety due to preoperative guidance. A total of 69.2% of patients were very satisfied with preoperative counselling, and 30.8% were satisfied with preoperative counselling.

**Conclusion:** This quasi-experimental study concludes that preoperative counselling regarding the anaesthetic procedure, intraoperative and postoperative events, and guidance throughout the procedure improves patients' pain tolerance, cooperation, and behaviour during the perioperative period.

**Keywords:** Anxiety, Spinal anaesthesia, Visual analog scale

## INTRODUCTION

Preoperative anxiety is a common occurrence in patients scheduled for surgery, ranging from 60% to 80%. This anxiety can have an impact on the quality of surgical and anaesthetic interventions, as well as, postoperative healing [1,2]. The field of anaesthesiology has evolved significantly in recent decades, and anaesthesiologists now play an important role in perioperative care, including intensive care, labour analgesia, pain clinics, and emergency medicine [3].

Anaesthesiologists play a vital role during surgery by safeguarding patients from adverse events, managing vital functions, providing effective pain relief, and maintaining optimal haemodynamic conditions from the operating room to the postoperative ward [3]. Adequate postoperative pain management is crucial for early mobilisation, prevention of thromboembolic complications, and overall well-being of the patient [4].

One major concern that affects individuals worldwide is the fear of undergoing general anaesthesia. This fear often exceeds the anxiety related to the surgery itself [5]. Patients commonly express fears related to needle pain at the injection site, being awake during surgery, experiencing partial paralysis, and developing back pain with spinal anaesthesia [6].

Literature indicates a higher level of preoperative anxiety in obstetric patients compared to general surgical patients [7]. Caesarean Section (CS) is a commonly performed surgical procedure in obstetric patients, and regional anaesthesia is the preferred technique due to its favourable risk-benefit profile for both the mother and foetus. In modern obstetric anaesthesia, the use of regional anaesthesia

for CS is considered a quality marker. Studies have shown that patients scheduled for elective CS often experience high levels of anxiety (72.7%), and general anaesthesia is frequently chosen as the preferred technique for these anxious patients [7].

Patients awaiting surgical procedures often experience stress and anxiety, which may be linked to potential negative outcomes such as palpitations, panic attacks, and hypertension. While an anaesthesiologist may provide a full explanation of the anaesthetic plan to patients, patient anxiety and time limitations may hinder the quality of information given and understood by the patients [8].

Large surveillance studies have traditionally shown occurrences of hypotension (33%) and bradycardia (13%) in non-obstetric patients [9-11]. Other incidences include hypothermia, postdural puncture, transient neurological symptoms, urinary retention, infectious complications, and neurological diseases. Perioperative anxiety can lead to increased levels of catecholamines, resulting in unwanted metabolic changes such as increased oxygen consumption, blood pressure, and heart rate. Anxiety can also worsen patients' perception of pain and increase the need for postoperative analgesia. Therefore, various agents like propofol and dexmedetomidine are used to decrease anxiety and provide sedation during regional anaesthesia [12,13].

Patient satisfaction is defined as the patient's response, which includes both "cognitive evaluation" and "emotional response," to the treatment they receive. The Picker Inpatient Survey [14] is a well known tool used in Europe to measure "patient experience." However, many flaws have been identified in its design, including the lack of patient involvement in the development stage.

Preoperative counselling can be used to reduce the requirement for analgesics, decrease complications, and increase patient satisfaction [1]. The study was conducted to assess the effect of preoperative counselling on intra and postoperative satisfaction among pregnant patients scheduled for CS under spinal anaesthesia.

## MATERIALS AND METHODS

The present study was a quasi-experimental study conducted in the Department of Anaesthesiology at Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Porompat, Manipur, for a duration of three years from September 2020 to August 2022.

**Inclusion and Exclusion criteria:** The inclusion criteria for the study population were patients aged 18-45 years, with an ASA physical status II, scheduled for elective CS under spinal anaesthesia at JNIMS, and who had given their consent. Patients who refused to participate and those with psychiatric illness were excluded.

The sample size was determined based on a prevalence of anxiety of 51.8% [7], using an alpha value of 0.05% and a power of 90% to detect a difference of 11 (two-sided). The calculated sample size using PASS software was 214 (107 in each group). The study received approval from the Institutional Ethics Committee (IEC no.260/29/PGT-2020), and informed consent was obtained from all participating patients. Confidentiality was maintained throughout the study.

All patients meeting the inclusion criteria and coming for elective CS under spinal anaesthesia were consecutively recruited until the sample size was reached. The study variables included age, parity, occupation, religion, previous CS, pre-anaesthetic check-up, VAS, and patient satisfaction.

### Procedures

After obtaining approval from the IEC at JNIMS, Imphal, and informed consent from participating patients, a properly designed quasi-experimental study was conducted on patients with ASA physical status II, aged 18-45 years, scheduled for elective CS under spinal anaesthesia.

There were two groups:

Group A: Preoperative counselling and routine pre-anaesthetic check-up.

Group B: Routine preanaesthetic check-up only.

Pre-anaesthetic check-up was carried out preoperatively, including detailed history taking, general physical examination, systemic examination, airway and spine examination, following the current practices at JNIMS. Patient's informed consent was obtained.

For group A, the studied population received both the routine pre-anaesthetic check-up and a separate counselling session on anaesthetic techniques. The preoperative counselling checklist included the following points:

- We are here to explain and counsel you regarding the anaesthesia procedure, its sequels thereafter, and to monitor your normal physiological status during the surgery under anaesthesia.
- We will administer the anaesthesia required to ease away the pain during the surgery.
- An injection will be given at the back under aseptic precautions, which may cause a mild painful sensation.
- Immediately following the injection, you will feel a warm and tingling sensation, which will subsequently lead to an inability to move your legs.
- You might also experience chest heaviness, dizziness, and shivering of the upper body due to the anaesthesia administered.
- These are all normal physiological responses to the anaesthesia given to relieve pain, so there is no need to panic.
- You will remain conscious throughout the procedure, able to talk to us, hear your baby cry, and report any uneasiness you may feel.
- Following the surgery, your lower limb functions will return to normal (you will be able to move your legs) within a few hours.
- Just relax and have confidence that we will take care of you.

All patients were kept nil orally and pre-medicated with Tab. Ranitidine 300 mg orally at 10:00 pm on the night before surgery.

Upon arrival in the operating room, an 18-gauge Intravenous (i.v.) catheter was inserted into the non-dominant hand, and a 10 mL/kg/h crystalloid solution (Ringer Lactate) was initiated before the spinal block. The patients were monitored with a five-lead Electrocardiogram (ECG), Non Invasive Blood Pressure (NIBP), pulse oximeter probe, and axillary temperature probe. The spinal injection was administered using Inj. 0.5% bupivacaine (heavy) 10.0 mg with a 5 cc syringe after the Cerebrospinal Fluid (CSF) freely flowed in the left lateral position. Strict aseptic conditions were maintained during the procedure, using a 25G Quincke spinal needle at the L2/L3 intervertebral space. Following the administration of spinal anaesthesia, the patients were placed in the supine position with a wedge under the right abdomen to prevent compression of the abdominal aorta. Throughout the surgery, the patients were monitored as follows:

1. Heart rate, saturation, and non invasive arterial pressure were recorded every five minutes for the first 15 minutes, and then every 15 minutes until the completion of surgery. Bradycardia (HR<60/min) was treated with 0.6 mg i.v. atropine. If the oxygen saturation ($SpO_2$) dropped below 94% on room air, oxygen supplementation was provided through nasal prongs with adjustable oxygen flow rate. Mephentermine i.v. was administered if the systolic blood pressure fell by 20% from the baseline or dropped below 100 mm Hg.
2. Continuous ECG monitoring was maintained until the end of surgery.
3. Complications associated with spinal anaesthesia, such as hypotension, bradycardia, drug allergy, nausea, vomiting,

pruritus, shivering, and bronchospasm, were monitored and treated accordingly.

This study aimed to compare the perioperative outcomes of both groups in terms of fear, anxiety, exaggerated physiological responses to spinal anaesthesia, pain-relieving time, and postoperative patient satisfaction. Questionnaires were modified for this study [3].

**Follow-up assessments:**

1. Intraoperative: anxiety, pain, level of block, chest heaviness, palpitations, shortness of breath, shivering.
2. Postoperative: pain, overall patient satisfaction.
3. Assessment and interpretation of satisfaction regarding intra and postoperative events.

## STATISTICAL ANALYSIS

The collected data were entered into Microsoft Excel 2007. After verifying their completeness and accuracy, the data were analysed using the Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics, such as mean, median, percentage, and standard deviation, were computed. The significance of the results was tested using analytical statistics, including the Student's t-test and Chi-square test. A p-value of <0.05 was considered significant.

## RESULTS

[Table/Fig-1] showed that there was no significant difference (p>0.05) in age between the two groups, indicating that both groups were comparable in terms of age.

| Age in years | Group A n (%) | Group B n (%) | Total n (%) | Chi-square test p-value |
|---|---|---|---|---|
| 18-25 | 28 (26.2) | 42 (39.3) | 70 (32.7) | Value=4.395 p-0.22 |
| 26-30 | 45 (42.1) | 39 (36.4) | 84 (39.2) | |
| 31-35 | 21 (19.6) | 15 (14.0) | 36 (16.8) | |
| 36-40 | 13 (12.1) | 11 (10.3) | 24 (11.3) | |
| **Total** | **107 (100.0)** | **107 (100.0)** | **214 (100.0)** | |
| **Parity** | **Group-A** | **Group-B** | **Chi-square test p-value** | |
| Multi | 75 (70.1) | 52 (48.6) | Value=4.669 p-0.19 | |
| Primi | 32 (29.9) | 55 (51.4) | | |
| **Total** | **107 (100.0)** | **107 (100.0)** | | |
| **Religion** | **Group-A n (%)** | **Group-B n (%)** | **Chi-square test p-value** | |
| Hindu | 70 (65.4) | 78 (72.8) | Value=1.41 p-0.49 | |
| Muslim | 29 (27.1) | 23 (21.4) | | |
| Christian | 8 (7.4) | 6 (5.6) | | |
| **Total** | **107 (100.0)** | **107 (100.0)** | | |
| **Occupation** | **Group-A n (%)** | **Group-B n (%)** | **Fisher-exact test p-value** | |
| Employed | 1 (0.9) | 14 (13.1) | Value=12.1 p-0.0006 | |
| Homemaker | 106 (99.1) | 93 (86.9) | | |
| **Total** | **107 (100.0)** | **107 (100.0)** | | |
| **Educational level** | **Group-A n (%)** | **Group-B n (%)** | **Chi-square test p-value** | |
| VIII std | 41 (38.4) | 32 (29.9) | Value=27.8 p<0.001 | |
| Graduate | 1 (0.9) | 27 (25.2) | | |
| Illiterate | 65 (60.7) | 48 (44.9) | | |
| **Total** | **107 (100.0)** | **107 (100.0)** | | |
| **Previous CS** | **Group-A n (%)** | **Group-B n (%)** | **Chi-square test p-value** | |
| No | 66 (61.7) | 60 (56.1) | Value=0.695 p-0.404 | |
| Yes | 41 (38.3) | 47 (43.9) | | |
| **Total** | **107 (100.0)** | **107 (100.0)** | | |

**[Table/Fig-1]:** Age distribution, parity, religion, occupation, educational level and previous Caesarean Section (CS) among the two groups.

The results revealed that the mean age in group A was 28.7±5.1, while in group B it was 27.54±5.0. Furthermore, 70% of group A participants were multipara, compared to 48.6% in group B. The p-value (>0.05) indicated that there was no significant difference in parity between the two groups, suggesting that they were comparable in terms of parity. Additionally, the majority of participants in both groups were homemakers, with 99.1% in group A and 86.9% in group B. However, it should be noted that in group B, some participants were employed.

The preoperative Systolic Blood Pressure (SBP) was similar between the two groups (p>0.05). However, both groups experienced a significant difference and fall in SBP from 20 minutes, with group B showing a persistent decrease, as indicated in [Table/Fig-2].

| SBP | Group-A Mean±SD | Group-B Mean±SD | t-test p-value |
|---|---|---|---|
| Preoperative | 130.5±13.3 | 133.5±9.5 | Value=-1.823 p-0.070 |
| Intraoperative 0 min | 127.2±5.2 | 127.2±9.0 | Value=0.056 p-0.956 |
| Intraoperative 10 min | 121.1±12.2 | 128.0±15.2 | Value=-3.649 p<0.001 |
| Intraoperative 20 min | 109.6±13.3 | 121.3±11.8 | Value=-6.729 p<0.001 |
| Intraoperative 30 min | 121.2±12.2 | 117.4±14.0 | Value=2.115 p-0.036 |
| Intraoperative 40 min | 123.2±10.4 | 116.8±9.4 | Value=4.668 p<0.001 |
| Intraoperative 1 hour | 120.7±7.2 | 120.5±8.5 | Value=0.147 p-0.883 |
| Postoperative | 121.6±9.3 | 121.6±12.0 | Value=0.019 p-0.985 |

**[Table/Fig-2]:** Distribution of Systolic Blood Pressure (SBP) among the two groups.

Similarly, the preoperative Diastolic Blood Pressure (DBP) was comparable between the two groups (p>0.05). Both groups exhibited a significant difference and fall in DBP from 20 minutes, with group B also demonstrating a persistent decrease, as shown in [Table/Fig-3].

| DBP | Group-A Mean±SD | Group-B Mean±SD | t-test p-value |
|---|---|---|---|
| Preoperative | 83.1±9.0 | 84.6±7.2 | Value=-1.346, p-0.180 |
| Intraoperative 0 min | 82.2±7.2 | 79.3±6.2 | Value=3.076, p-0.002 |
| Intraoperative 10 min | 75.4±9.6 | 79.2±13.8 | Value=-2.342, p-0.020 |
| Intraoperative 20 min | 64.7±7.7 | 78.3±10.8 | Value=-10.503, p<0.001 |
| Intraoperative 30 min | 70.5±8.7 | 73.8±10.3 | Value=-2.280, p-0.024 |
| Intraoperative 40 min | 77.0±7.9 | 73.7±10.3 | Value=2.639, p-0.009 |
| Intraoperative 1 hour | 79.7±7.5 | 78.2±7.8 | Value=0.401, p-0.163 |
| Postoperative | 78.1±3.9 | 81.0±5.1 | Value=-4.698 p<0.001 |

**[Table/Fig-3]:** Distribution of Diastolic Blood Pressure (DBP) among the two groups.

The study observed a decline in both SBP and DBP from 20 minutes in both groups, with 42 patients (39.3%) in the study group and 50 patients (46.7%) in the control group experiencing this decrease. Notably, the persistent decrease was more prevalent in the control group.

Regarding pulse rate, [Table/Fig-4] indicated that there was not much difference between the two groups.

| Pulse rate | Group-A Mean±SD | Group-B Mean±SD | t-test p-value |
|---|---|---|---|
| Preoperative | 93.3±11.0 | 92.6±14.4 | Value=389, p-0.698 |
| Intraoperative 0 min | 91.9±9.8 | 88.8±10.5 | Value=2.252, p-0.025 |
| Intraoperative 10 min | 90.6±9.9 | 89.4±9.9 | Value=0.934, p-0.352 |
| Intraoperative 20 min | 81.6±16.9 | 85.2±9.5 | Value=-1.879, p-0.062 |
| Intraoperative 30 min | 82.5±12.2 | 85.8±8.0 | Value=-2.280, p-0.024 |
| Intraoperative 40 min | 83.2±10.2 | 81.8±7.4 | Value=1.093, p-0.276 |
| Intraoperative 1 hour | 77.7±8.2 | 81.7±6.0 | Value=-4.052, p<0.001 |
| Postoperative | 76.3±7.9 | 80.7±6.3 | Value=-4.507, p<0.001 |

**[Table/Fig-4]:** Distribution of pulse rate among the two groups.

[Table/Fig-5] demonstrated that no pain and mild pain were more prevalent in group A, while moderate pain was more common in group B, which was statistically significant (p<0.05).

| VAS | Group-A N (%) | Group-B N (%) | Chi-square test p-value |
|---|---|---|---|
| No pain* | 54 (50.5) | 46 (43.0) | Value=13.4 p-0.001 |
| Mild pain* | 33 (30.8) | 18 (16.8) | |
| Moderate pain* | 20 (18.7) | 43 (40.2) | |
| **Total** | **107 (100.0)** | **107 (100.0)** | |

**[Table/Fig-5]:** Distribution of Visual Analogue Scores (VASs) among the two groups. NB: No cases were observed in severe, very severe and worst pain

Group A patients expressed higher satisfaction with the operation date compared to group B, and this finding was statistically significant, as shown in [Table/Fig-6].

| Operated on due date | Group-A n (%) | Group-B n (%) | Chi-square test p-value |
|---|---|---|---|
| Yes | 86 (80.3) | 70 (65.4) | Value=6.055 p-0.01 |
| No | 21 (19.7) | 37 (34.6) | |
| **Total** | **107 (100.0)** | **107 (100.0)** | |

**[Table/Fig-6]:** Distribution of patient satisfaction question "Operated on due date" among the two groups.

In both groups, SA was found to be painful in 88.8% of the patients. However, it was more tolerable among group A, with a statistically significant difference (p<0.05) observed in [Table/Fig-7].

| SA injection painful | Group-A n (%) | Group-B n (%) | Chi-square test p-value |
|---|---|---|---|
| Yes | 95 (88.8) | 95 (88.8) | Value=0.0 p-1.0 |
| No | 12 (11.2) | 12 (11.2) | |
| **Total** | **107 (100.0)** | **107 (100.0)** | |
| **If yes, tolerable** | | | |
| Yes | 83 (87.4) | 62 (65.3) | Value=12.409 p-0.0004 |
| No | 12 (12.6) | 33 (34.7) | |
| **Total** | **95 (100.0)** | **95 (100.0)** | |

**[Table/Fig-7]:** Distribution of patient satisfaction question "SA injection painful" among the two groups.

Discomfort during surgery was more pronounced in group B than in group A, and this difference was statistically significant, as indicated in [Table/Fig-8].

| Discomfort during surgery | Group-A n (%) | Group-B n (%) | Chi-square test p-value |
|---|---|---|---|
| Yes | 20 (18.7) | 63 (58.9) | Value=36.4 p<0.001 |
| No | 87 (81.3) | 44 (41.1) | |
| **Total** | **107 (100.0)** | **107 (100.0)** | |

**[Table/Fig-8]:** Distribution of patient satisfaction question "Discomfort during Surgery" among the two groups.

In group A, 62 patients experienced pain as discomfort, while 19 patients reported shortness of breath. In contrast, all patients in group B experienced shortness of breath.

Discomfort after surgery was more prevalent in group B compared to group A, and this difference was statistically significant, as shown in [Table/Fig-9].

| Discomfort after surgery | Group-A n (%) | Group-B n (%) | Chi-square test p-value |
|---|---|---|---|
| Yes | 40 (37.4) | 61 (57.1) | Value=8.269 p-0.004 |
| No | 67 (62.6) | 46 (42.9) | |
| **Total** | **107 (100.0)** | **107 (100.0)** | |

**[Table/Fig-9]:** Distribution of patient satisfaction question "Discomfort after Surgery" among the two groups.

All patients in group A expressed satisfaction with preoperative counselling, and they reported that it reduced pain, fear, and anxiety. These findings are presented in [Table/Fig-10].

| Other variables | Group-A n (%) |
|---|---|
| Preoperative guiding reduces fear and anxiety | All |
| How satisfied is preoperative counselling | Satisfied in 33 (30.8)<br>Very satisfied in 74 (69.2) |
| Did it reduce your pain during SA and surgery | Yes in all |

**[Table/Fig-10]:** Distribution of patient satisfaction questions among Group-A patients.

## DISCUSSION

In this study, there was a fall in SBP and DBP from 20 minutes in both groups, with 42 patients (39.3%) in the study group and 50 patients (46.7%) in the control group experiencing this decrease. However, significant hypotension was not observed in either group. Wade J et al., found in their study that providing information could reduce anxiety, pain, and postoperative complications [15]. Similarly, in this study, preoperative guidance reduced fear and anxiety in all patients in the study group.

Cárdenas A et al., conducted a study where providing information through a written educational booklet to 30 patients undergoing hysterectomy reduced the frequency of postoperative anxiety, pain, and other complications [16]. In this study, the study group had 54 patients (50.5%) reporting no pain and 33 patients (30.8%) reporting mild pain, while the control group had 43 patients (40.2%) reporting moderate pain, which was statistically significant. Therefore, preoperative counselling reduced pain in the study group. This finding is consistent with the study by Grawe JS et al., where patients who received preoperative instructions experienced a greater decrease in postoperative pain compared to those without preoperative instructions. The risk of experiencing higher pain levels (NRS >3) on the third postoperative day was decreased (2.1% vs. 14.6%) [17].

A retrospective study by Rapp A et al., concluded that preoperative education prior to spinal surgery does not necessarily result in improved pain management, shorter hospital stays, or better patient satisfaction [18]. Bhatnagar V, in his study, suggested that adequate pre- and postsurgery psychological preparation empowers patients and enables them to play an active role in their management, leading to fewer complications, greater patient satisfaction, shorter hospital stays, and a positive attitude towards medical facilities [19]. In the study by Kalliyath AK et al., it was observed that the median value of postoperative pain, analysed using the Visual Analogue Scale (VAS) five hours after providing education, was significantly lower in group A (study group) (5.00) compared to group B (control group) (9.00) [4]. Similarly, in this study, the distribution of VAS scores among group A patients showed more cases of no pain and mild pain (30.8%), while in group B, moderate pain (40.2%) was more prevalent, which was statistically significant.

### Limitation(s)

Pain is subjective, and the perception threshold for pain may vary, which can lead to inappropriate conclusions about its severity. Furthermore, there are no standardised criteria for measuring patient satisfaction scores, and this measure is limited by the educational backgrounds of patients treated in government hospitals in Northeast India.

## CONCLUSION(S)

From this quasi-experimental study, it has been observed that regardless of the patient's educational status, their understanding of intraoperative and postoperative events before anaesthesia and surgery begins, helps reduce fluctuations in haemodynamic parameters and overall patient satisfaction, including pain and discomfort during anaesthesia and surgery. Therefore, preoperative

counselling regarding intraoperative and postoperative events should be made a routine practice in all healthcare facilities.

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