

# Pressure experience during cesarean delivery: risk factors, management, and patient satisfaction



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- Pressure during cesarean delivery (CD) is commonly reported (92% in a recent study)<sup>1</sup>
- Despite this, the patient experience and clinical significance of intraoperative pressure remain poorly characterized
- This study aimed to:
  - Characterize patients’ experience of pressure
  - Evaluate the association between pressure and patient satisfaction with intraoperative management
  - Determine risk factors for reporting pressure
- Two sites patient-reported study (May-Nov 2025)
- Recruited women undergoing any type of CD
  - English and Spanish speaking
  - Excluded general anesthesia from start, complex surgery, and fetal demise
- Interviewed < 48 hours after CD
  - 23 questions covering intraoperative sensations, management, and satisfaction
- Obstetric, anesthetic, and patient-related factors extracted from EMR
- **Analysis excluded patients who reported pain**

<sup>1</sup>Orbach-Zinger. Eur J Anaesthesiol. 2026.

- **1005 patients enrolled**
- **940 (93.5%) did not report pain**
- **84.3% reported pressure**

**Table 1. Intravenous medication and satisfaction with anesthesia care**

|                                                                | No/mild pressure (n=605) | Moderate/severe pressure (n=335) | P-value |
|----------------------------------------------------------------|--------------------------|----------------------------------|---------|
| Intraoperative intravenous medications (data from EMR)         |                          |                                  |         |
| Midazolam, n                                                   | 23 (3.8%)                | 24 (7.2%)                        | 0.028   |
| Dexmedetomidine, n                                             | 213 (35.2%)              | 155 (46.3%)                      | 0.001   |
| Any IV analgesic <sup>1</sup> , n                              | 44 (7.3%)                | 59 (17.6%)                       | <0.001  |
| Satisfaction with intraoperative anesthesia care (from survey) |                          |                                  |         |
| Very Satisfied                                                 | 551 (91.1%)              | 267 (79.7%)                      | 0.001   |
| Satisfied                                                      | 49 (8.1%)                | 58 (17.3%)                       |         |
| Neutral                                                        | 3 (0.5%)                 | 8 (2.4%)                         |         |
| Unsatisfied                                                    | 2 (0.3%)                 | 2 (0.6%)                         |         |

<sup>1</sup>Includes fentanyl, morphine, ketamine, and dexmedetomidine.

| Pressure Intensity | n           |
|--------------------|-------------|
| None               | 148 (15.7%) |
| Mild               | 457 (48.6%) |
| Moderate           | 268 (28.5%) |
| Severe             | 67 (7.1%)   |

Intraoperative management

- More intense pressure associated with more anxiolytic and analgesic administration

Satisfaction

- Moderate to severe pressure associated with lower satisfaction

Table 2. Risk factors for moderate to severe pressure (logistic regression)

|                                       | No/mild pressure<br>(n=605) | Moderate/severe pressure<br>(n=335) | P-value | Adjusted Odds Ratio      |
|---------------------------------------|-----------------------------|-------------------------------------|---------|--------------------------|
| Patient-related factors               |                             |                                     |         |                          |
| Ethnicity                             |                             |                                     | <0.001  |                          |
| Not Hispanic, n                       | 180 (29.8%)                 | 162 (48.4%)                         |         | 1.00 (reference)         |
| Hispanic, n                           | 377 (62.3%)                 | 138 (41.2%)                         |         | <b>0.43 (0.32, 0.58)</b> |
| Anxiety (yes), n                      | 69 (11.4%)                  | 58 (17.3%)                          | 0.013   | <b>1.52 (1.03, 2.26)</b> |
| Obstetric factors                     |                             |                                     |         |                          |
| Emergency CD                          |                             |                                     | 0.006   |                          |
| No, n                                 | 575 (95.4%)                 | 303 (90.4%)                         |         | 1.00 (reference)         |
| Yes, n                                | 26 (4.3%)                   | 31 (9.3%)                           |         | <b>2.04 (1.16, 3.60)</b> |
| Survey questions                      |                             |                                     |         |                          |
| ‘Did someone explain what to expect?’ |                             |                                     | 0.022   |                          |
| Yes, n                                | 592 (97.9%)                 | 317 (94.6%)                         |         | 1.00 (reference)         |
| No, n                                 | 9 (1.5%)                    | 14 (4.2%)                           |         | <b>2.94 (1.19, 7.22)</b> |

Factors not associated with moderate to severe pressure were: overall anesthesia type, history of CD, planned vs unplanned CD

## In a cohort of women with no intraoperative pain:

- Pressure during CD was common (84.3%) but experienced on a spectrum
  - **One third experienced moderate to severe pressure**
- Overall, anesthesia type (spinal, CSE vs. epidural) was not associated with moderate/severe pressure
- Moderate/severe pressure was associated with greater anxiolytic and analgesic supplementation, suggesting it may influence intraoperative management.
- **Moderate/severe pressure was associated with lower patient satisfaction, supporting its significance to the patient experience.**
- Anxiety and communication regarding what to expect are modifiable risk factors for moderate/severe pressure.
  - Counselling on the varied experience of pressure could influence the intraoperative experience and improve patient satisfaction



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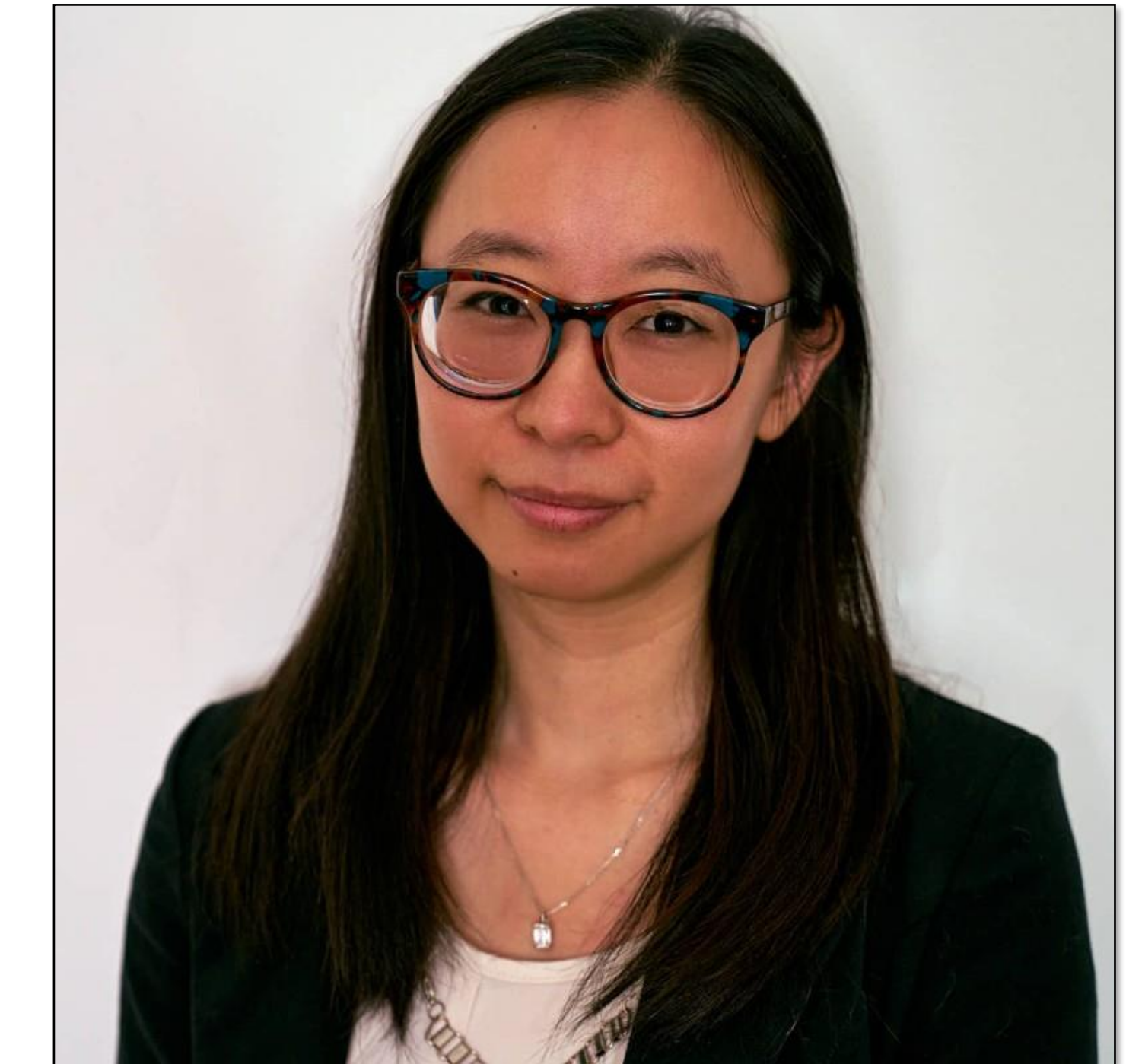
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