


Original Research

Impact of Peripartum Depression and Anxiety Symptoms on Unplanned Cesarean or Operative Vaginal Births: A Prospective Observational Study

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Abstract

Background: Depression and anxiety symptoms can impact childbirth. The aim of this study was to examine the association between peripartum depression and anxiety symptoms with unplanned cesarean or operative vaginal births. **Methods:** This single-center observational study categorized women into two groups based on the presence (or absence) of depression symptoms in the last 7 days. We collected birth records, demographic data, clinical characteristics, Hospital Anxiety and Depression Scale (HADS) scores, and visual analog scale (VAS) score for pain. **Results:** A total of 201 women participated in the study, with 37 (18.4%) experiencing depression symptoms, and 164 (81.6%) without such symptoms. Women with peripartum depression symptoms were more likely to require an unplanned medical intervention (unplanned cesarean or operative vaginal birth) compared to those without such symptoms (54.1% vs. 28.0%; $p = 0.002$). Similarly, women with peripartum anxiety symptoms were also more likely to require an unplanned medical intervention (43.0% vs. 25.2%; $p = 0.008$). Binary logistic regression analysis demonstrated that experiencing peripartum depression symptoms independently increased the probability of undergoing an unplanned cesarean or operative birth. **Conclusions:** Women experiencing symptoms of peripartum depression near the time of birth are at a higher risk of having an unplanned cesarean or operative vaginal birth.

Keywords: depression; anxiety; pain; cesarean section; birth

1. Introduction

Depression and anxiety have the potential to impact the birthing process [1–3]. Many women experience symptoms of depression and anxiety prior to giving birth, and these symptoms can influence the decisions made by both mothers and healthcare providers during shared decision-making [1]. These symptoms could potentially result in a preference for a briefer labor or a feeling of inadequacy regarding the birthing process.

The World Health Organization (WHO) recommends screening for postpartum depression and anxiety as part of their guidelines on maternal and newborn care [4]. While efforts to address depression and anxiety have primarily focused on interventions during childbirth, such as immediate skin-to-skin care, there is a lack of strategies targeting the prevention and identification of these symptoms in the weeks leading up to birth [5–7].

Our study aimed to assess whether women who experience symptoms of peripartum depression or anxiety during the week preceding childbirth face an increased risk of undergoing an unplanned medical intervention, such as an unplanned cesarean section or operative vaginal birth.

2. Material and Methods

2.1 Study Design

This observational study was conducted at Hospital Universitario La Paz, Madrid, and included women who were admitted to the postpartum ward after giving birth. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the local Ethics Committee (approval number: PI-4518). Written informed consent was obtained from all participants.

The inclusion criteria consisted of the following: (1) women aged 18 years and above, (2) women capable of reading and understanding Spanish, (3) singleton pregnancies, and (4) women who had given birth within the past 12 hours. The exclusion criteria were: (1) women admitted to reanimation or the intensive care unit (ICU) for longer than 6 hours after birth, (2) women with infection and requiring isolation, (3) women affected by mental or psychological disorders, and (4) women receiving treatment with psychopharmacological medications or using psychoactive drugs or alcohol.

Women were offered to participate in the study in the postpartum ward after birth. The Hospital Anxiety and De-



pression Scale (HADS) and the Visual Analog Scale (VAS) score for pain were collected 12 hours after birth [8–10]. The study was conducted specifically 12 hours after childbirth, as this timeframe marks the completion of the initial or acute phase of the postpartum period [11].

The HADS consists of the Hospital Anxiety and Depression Scale-Anxiety subscale (HADS-A) and Hospital Anxiety and Depression Scale-Depression subscale (HADS-D) subscales to assess anxiety and depression, respectively, during the previous 7 days. A score of >7 on any subscales indicates the presence of symptoms, and a score >14 indicates severe symptoms [12].

The participants were divided into two study groups: group 1, included all eligible women with HADS-D results >7 ; group 2, included all eligible women with HADS-D results ≤ 7 .

The VAS score was used to measure the pain intensity in both groups. The VAS score assigns pain ranging from 0 (indicating no pain) to 10 (representing severe pain). In people with depression or anxiety, pain may become intense and difficult to identify as it shares some biological mechanisms with depression and anxiety [13].

Clinical characteristics collected included: demographic data of the mother and newborn, use of assisted reproduction techniques (ART), medication used during pregnancy, complications during pregnancy, the mother's awareness of the possible admission of the newborn, emergency visits during pregnancy, gestational age at birth, admission time, and type of birth.

The following data were collected and recorded in the postpartum ward during the 12 hours after birth: pain intensity and number of requests/calls for pain control, admission of the newborn to the neonatal intensive care unit (NICU), duration of mother and newborn separation (if newborn was admitted), initiation of oral intake (only cesarian births), ambulation, and presence or absence of a companion.

The sample size was calculated using the results of a pilot study that considered an unplanned cesarean or operative vaginal birth as the primary outcome variable. We estimated the necessary sample size with a confidence level of 0.95 ($1-\alpha$) and a statistical power of 0.80 to demonstrate a difference of at least 30% in the proportion of women affected by unplanned cesarean or operative vaginal births. Starting from a possible 30% of women having an unplanned cesarean or operative vaginal birth, the necessary sample size would be 33 women for each group. Consecutive women were included in the study; we continued the recruitment for 37 women in the study group (HADS-D >7) to account for secondary variable analysis.

2.2 Statistical Analysis

Numerical variables were expressed as median (interquartile range, IQR) and qualitative variables were expressed as proportions (absolute and relative frequencies).

Comparisons between groups were performed by the Mann-Whitney U-test, two-tailed χ^2 -test, or two-tailed Fisher's exact test as appropriate. Binary logistic regression was used to determine the factors that increased the likelihood of unplanned cesarean or operative birth. Level of significance was set at p -value < 0.05 . All analyses were performed using SPSS version 22.0 (SPSS Inc., Chicago, IL, USA).

3. Results

Between January 2021 and February 2022, 201 eligible women participated in the study. Out of the 201 participants, 193 were European, 6 African American, and 2 Asian. They were admitted at different daytimes, 94 (46.8%) were admitted during the night, and 107 (53.2%) during the day. There were 56 (27.9%) cesarean births (48 primary cesarean births, and 8 secondary cesarean births), and 23 (11.4%) operative vaginal births (7 forceps, 15 vacuum, and 1 Thierry's spatula assisted births). Labor started spontaneously in 128 (63.7%) women, labor induction was indicated in 60 (29.9%) women, and scheduled cesarean birth was indicated in 13 (6.5%) women. 66 (32.8%) births ended in unplanned cesarean or operative vaginal birth (43 (21.4%) cesarean and 23 (11.4%) operative vaginal births). 39 (90.7%) of the 43 unplanned cesarean births were performed after a failed trial of labor. The VAS score was 3 (2; 5).

Group 1 included 37 women (18.4%) experiencing depression symptoms during the peripartum period, of which 4 (10.8%) individuals out of this group presented severe depression symptoms. In contrast, group 2 included 164 women (81.6%) without depression symptoms within the previous 7 days. There were differences between group 1 and group 2 regarding the rate of unplanned medical interventions, previous cesarean births, prematurity, ART, awareness of possible baby admission, baby admissions, anxiety symptoms, and Apgar scores. There was no statistically significant difference in pain between the two groups based on the VAS results (Table 1).

None of the women had comorbidities that would determine the birth method, except for one case of genital herpes in the group without peripartum depression symptoms, which was the cause of an unplanned cesarean birth. Regarding complications during pregnancy, there were 9 (4.5%) women with gestational diabetes, 8 (4.9%) in the group without peripartum depression symptoms, and 1 (2.7%) in the group with peripartum depression symptoms ($p = 1$). 12 (6.0%) women had preeclampsia, 10 (6.1%) in group 2, and 2 (5.4%) in group 1 ($p = 1$). 3 babies (1.5%) were impacted by intrauterine growth restriction, 2 (1.2%) of which in group 2, and 1 (2.7%) in group 1 ($p = 0.1612$). There was 1 woman with intrahepatic cholestasis in the group without peripartum depression symptoms.

Regarding nutrition, all women followed an omnivorous diet, except for 1 vegetarian woman in the group with-

Table 1. Maternal, birth, and neonatal data. Comparison between group with peripartum symptoms of depression and group without symptoms.

	Group 1: Peripartum depression symptoms (n = 37)	Group 2: No peripartum depression symptoms (n = 164)	<i>p</i> -value
Maternal age (years)	37.0 (31.5; 39.0)	34.0 (31.0; 37.0)	0.055
Gestational age (weeks)	39.1 (36.9; 40.4)	39.2 (37.8; 40.0)	0.578
Prematurity (<37 weeks)	9 (24.3%)	18 (11.0%)	0.031
BMI (kg/m ²)	27.4 (24.3; 30.1)	26.2 (23.8; 29.0)	0.337
Unplanned cesarean or operative birth	20 (54.1%)	46 (28.0%)	0.002
Operative birth	5 (13.5%)	18 (11.0%)	0.775
Cesarean birth	15 (40.5%)	41 (25.0%)	0.057
Secondary cesarean birth	4 (10.8%)	4 (2.4%)	0.039
Multiparous	20 (54.1%)	69 (42.1%)	0.235
Previous cesarean birth	5 (13.5%)	5 (3.0%)	0.020
ART	8 (21.6%)	16 (9.8%)	0.044
Comorbidities	2 (5.4%)	28 (17.1%)	0.078
Awareness of baby admission	8 (21.6%)	14 (8.5%)	0.021
Emergency visits during pregnancy	17 (45.9%)	100 (61.0%)	0.094
Admission during the night (09:00 pm to 09:00 am)	20 (54.1%)	74 (45.1%)	0.325
Baby admission	10 (27.0%)	17 (10.4%)	0.007
Neonatal weight	3110 (2540; 3610)	3135 (2825; 3397)	0.930
Apgar1	9 (7; 9)	9 (8; 9)	0.071
Apgar5	9.5 (8.5; 10)	10 (9; 10)	0.051
Apgar5 <7	1 (8.3%)	3 (0.6%)	0.019
UA pH ¹	7.27 (7.22; 7.33)	7.29 (7.23; 7.33)	0.089
Ambulation at 12 hours after birth	37 (100%)	164 (100%)	1.000
Companion present	36 (97.3%)	163 (99.4%)	1.000
VAS	4 (2; 6)	3 (1; 5)	0.183
HADS-A	12 (9; 14)	6 (4; 8)	<0.001
HADS-A >7	33 (89.2%)	53 (32.3%)	<0.001
HADS-A >14	4 (18.9%)	7 (2.4%)	<0.001
HADS-D	9 (11; 13)	3 (1; 5)	<0.001
HADS-D >7	37 (100%)	0 (0%)	<0.001
HADS-D >14	4 (10.8%)	0 (0%)	0.001

Abbreviations: BMI, body mass index; ART, assisted reproduction techniques; UA, umbilical artery; HADS-A, Hospital Anxiety and Depression Scale-Anxiety subscale; HADS-D, Hospital Anxiety and Depression Scale-Depression subscale; VAS, visual analog scale for pain.

Data are presented as medians (interquartile range), and absolute and relative frequencies for qualitative variables.

UA pH¹ data was missing in one case in the no peripartum depression symptoms group.

out peripartum depression symptoms. All women followed the same analgesia protocol in the postpartum ward, based on paracetamol and ibuprofen or paracetamol and dexketoprofen.

Binary logistic regression revealed that peripartum depression symptoms were independently associated with a higher probability of unplanned cesarean or operative birth (odds ratio (OR), 3.263; 95% confidence interval (95% CI), 1.125–9.463) (Table 2).

Regarding anxiety symptoms, 86 (42.8%) women reported the symptoms, 11 (12.8%) of which reported severe symptoms (HADS-A). There were statistically significant

differences between the women who had peripartum anxiety symptoms and those without symptoms in various aspects, including the rate of unplanned medical interventions (37 vs. 29, $p = 0.008$), maternal age (36.0 (32.0; 38.0) vs. 34.0 (30.0; 37.0), $p = 0.016$), rate of previous cesarean births (8 vs. 2, $p = 0.020$), awareness of possible baby admission (14 vs. 8, $p = 0.036$), and baby admissions (17 vs. 10, $p = 0.023$) (Table 3).

4. Discussion

In our study, women experiencing peripartum symptoms of depression were more likely to undergo unplanned

Table 2. Binary logistic regression for unplanned cesarean or operative birth.

	Odds ratio	95% CI	<i>p</i> -value
HADS-D >7	3.263	1.125–9.463	0.029
HADS-A >7	1.765	0.805–3.867	0.156
GA <37 weeks	1.070	0.291–3.940	0.993
ART	3.400	1.172–9.864	0.024
Expected admission of the newborn	1.267	0.314–5.103	0.739
Any comorbidity	1.434	0.552–3.728	0.459
Multiparous	0.067	0.023–0.199	<0.001
Previous cesarean birth	26.424	4.626–150.924	<0.001

Abbreviations: HADS-D, Hospital Anxiety and Depression Scale-Depression subscale; HADS-A, Hospital Anxiety and Depression Scale-Anxiety subscale; GA, gestational age; ART, assisted reproduction techniques; 95% CI, 95% confidence interval.

Binary logistic regression model including data present at labor. Presence of depression symptoms (HADS-D >7), anxiety symptoms (HADS-A >7), prematurity, ART, expected admission of the newborn, being multiparous, and previous cesarean birth.

medical interventions, such as unplanned cesarean or operative vaginal births. These depressive symptoms could have potentially impacted shared decision-making, leading to a decrease in both the quality and occurrence of joint decisions [14].

Women's psychological symptoms can have an impact on shared decisiveness. Women experiencing depression and anxiety symptoms are more likely to have an unexpected delivery method. It is possible that these symptoms may lead to a desire for a shorter birth, or a perception of inadequacy for the birthing process. Previous studies have shown that unexpected medical interventions during birth can result in a poorer perception of respect, adequate care, and overall satisfaction [15,16]. These negative birth experiences may increase the likelihood of postpartum depression, opting not to breastfeed, and limited mother-infant bonding [16–20]. Family-centered care, including careful decisions by healthcare providers and the mothers, is considered of utmost importance for a satisfying birth experience [21,22]. Decision-making is most noticeably experienced when the birth proceeds as planned [23]. In our center, midwives provide care for laboring women, and obstetricians intervene when medical decisions, such as unplanned cesarean or operative births, need to be evaluated. Despite the undeniable importance of shared decision-making, the consequences of inadequate decision-making can be detrimental, including the potential worsening of preexisting symptoms. Moreover, it may contribute to an increased number of cesarean and operative births.

The period of childbirth is inherently sensitive and vulnerable. Anxiety, along with stress, depression, and fear, can profoundly impact a woman's psychological well-being during this time [24]. It requires delicately balancing a woman's right to self-determination with the necessity to

consider medical intervention autonomously. In the specific context of anxiety, it can significantly alter a woman's perception of pain during obstetric procedures, potentially increasing the inclination towards opting for a cesarean birth [13,24]. Anxiety may heighten the anticipation of pain, making the prospect of a surgical procedure like a cesarean birth appear more appealing, as it offers a perceived sense of control and predictability over the birthing process.

Depression and anxiety are of multifactorial origin in the context of birth [16,18,25–27]. Among others, inadequate childbirth education and unexpected events play an important role [28]. Childbirth education emphasizes potential birth scenarios and equips women and companions with coping skills to navigate unexpected situations during birth. In our study, as the recruitment was consecutive, we found that 18.4% of the women suffered depression symptoms, and 42.8% women suffered anxiety symptoms close to birth. Women with psychological symptoms documented in their medical records were excluded from our study. However, it is conceivable that a considerable portion of these women may have experienced subthreshold symptoms during pregnancy. These subthreshold symptoms might not meet the criteria for a clinical diagnosis but hold significant importance as they are known to serve as indicators for identifying women susceptible to peripartum depression [29]. We believe that during childbirth education, many of these subthreshold symptoms, like panic, social anxiety, or eating-related issues can be discussed and prevented.

We did not find an increase in pain perception in women with peripartum depression or anxiety in our study. Regarding how pain was measured, the VAS is a subjective method that does not assess pain's evolution over time [10]. We believe that the fact that women who were admitted to the reanimation or ICU for more than 6 hours after birth were excluded from the study may have influenced the results. This exclusion criterion meant that women who required general anesthesia or who had problems during anesthesia were excluded from the study, which are known risk factors for postpartum pain [13,30]. Furthermore, in our center, the protocol is to start early ambulation, provide a suitable diet, offer education about the newborn within the initial 6 to 8 hours following a cesarean birth, and as soon as feasible after a vaginal birth. Therefore, collecting the VAS scores for pain after 12 hours implies that all women were in a similar recovery situation.

Women who were aware of the neonates' admission to the NICU by the neonatologist were more likely to have experienced peripartum depression and anxiety symptoms. However, binary logistic regression showed that this was not an independent risk factor. We believe that our findings may be attributed to the fact that the neonatology department in our center has been actively involved in communication training through medical simulations for several years. Effective communication has demonstrated to enhance the experience of parents [31]. In addition, the NICU

Table 3. Maternal, birth and neonatal data. Comparison between group with peripartum symptoms of anxiety and group without symptoms.

	Peripartum anxiety symptoms (n = 86)	No peripartum anxiety symptoms (n = 115)	p-value
Maternal age (years)	36.0 (32.0; 38.0)	34.0 (30.0; 37.0)	0.016
Gestational age (weeks)	39.3 (38.0; 40.1)	39.1 (37.6; 40.0)	0.517
Prematurity (<37 weeks)	13 (15.1%)	14 (12.2%)	0.545
BMI (kg/m ²)	26.6 (23.8; 28.9)	26.4 (23.8; 29.1)	0.966
Unplanned cesarean or operative birth	37 (43.0%)	29 (25.2%)	0.008
Operative birth	13 (15.1%)	10 (8.7%)	0.157
Cesarean birth	27 (31.4%)	29 (25.2%)	0.334
Secondary cesarean birth	6 (7.0%)	2 (1.7%)	0.076
Multiparous	41 (47.7%)	48 (41.7%)	0.402
Previous cesarean birth	8 (9.3%)	2 (1.7%)	0.020
ART	12 (14.0%)	12 (10.4%)	0.447
Comorbidities	17 (19.8%)	19 (16.5%)	0.553
Awareness of baby admission	14 (16.3%)	8 (7.0%)	0.036
Emergency visits during pregnancy	48 (55.8%)	69 (60.0%)	0.185
Admission during the night (09:00 pm to 09:00 am)	42 (48.8%)	52 (45.2%)	0.611
Baby admission	17 (19.8%)	10 (8.7%)	0.023
Neonatal weight	3116 (2790; 3510)	3110 (2797; 3400)	0.575
Apgar1	9 (9; 9)	9 (8; 9)	0.370
Apgar5	10 (9; 10)	10 (9; 10)	0.370
Apgar5 <7	3 (3.6%)	1 (0.9%)	0.312
UA pH ¹	7.27 (7.22; 7.33)	7.28 (7.22; 7.33)	0.668
Ambulation at 12 hours after birth	37 (100%)	164 (100%)	1
Companion present	85 (98.8%)	114 (99.1%)	0.335
VAS-Pain	4 (2; 5)	3 (2; 5)	0.335
HADS-D	6 (4; 10)	2 (1; 4)	<0.001
HADS-D >7	33 (38.4%)	4 (3.5%)	<0.001
HADS-D >14	4 (4.7%)	0 (0%)	0.032
HADS-A	10 (9; 13)	5 (3; 6)	<0.001
HADS-A >7	86 (100%)	0 (0%)	<0.001
HADS-A >14	11 (12.8%)	0 (0%)	<0.001

Abbreviations: BMI, body mass index; ART, assisted reproduction techniques; UA, umbilical artery; HADS-D, Hospital Anxiety and Depression Scale-Depression subscale; HADS-A, Hospital Anxiety and Depression Scale-Anxiety subscale; VAS Pain, visual analog scale for pain.

Data are presented as medians (interquartile range), and absolute and relative frequencies for qualitative variables.

UA pH¹ data was missing in one case in the peripartum anxiety symptoms group.

in our center is open 24 hours a day for the parents. Other studies have linked neonatal outcomes with an increased risk of postpartum depression or anxiety. However, there are no studies about depression or anxiety symptoms close to birth [32].

The main strength of our study is that it reflects the actual population that is cared for in the postpartum wards. The percentages of cesarean births, operative vaginal births, and prematurity coincide with those observed in our center. In addition, as the assessment was performed 12 hours after birth, we can assume that the intervention did not interfere with the results. It is an opportune moment to gather information about the experience and emotions surrounding childbirth, without unduly influencing its various stages.

The primary limitation of our study was the absence of a psychological prenatal assessment. Currently, routine psychological evaluations are not provided to pregnant women in our center. Certainly, if a psychological assessment had been conducted, some women might have received treatment, potentially influencing various obstetric outcomes, including the mode of delivery [33]. After the study, all women received postpartum care at their health-care facility; we were not authorized to access their medical records outside the hospital setting.

5. Conclusions

Maternal symptoms of depression during the peripartum period, specifically close to birth, are independently related to a greater probability of unplanned medical interven-

tions, either unplanned cesarean or operative vaginal birth. Proper communication by obstetricians, adequate childbirth education, or a psychological prenatal assessment could improve these results. More studies are needed to assess possible interventions.

Abbreviations

HADS, hospital anxiety and depression scale; VAS, visual analog scale; ART, assisted reproduction techniques.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author Contributions

MJR and MJC: protocol/project development, data analysis, manuscript writing. MAP: data collection, manuscript editing. CV: data analysis; manuscript writing/editing. SF: validation of data analysis; manuscript reviewing and editing. JLB: protocol/project development, validation of data analysis, manuscript reviewing and editing. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Hospital Universitario La Paz, Madrid (approval number: PI-4518).

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Conflict of Interest

The authors declare no conflict of interest.

References

- [1] Austin J, Wirtz A, Garrett M, Ferrell SC, Stephenson E, Gajjar S, *et al.* Associations of cesarean sections with comorbidities within the Pregnancy Risk Assessment Monitoring System. *Journal of Perinatal Medicine*. 2023; 51: 1025–1031.
- [2] Dikmen-Yildiz P, Ayers S, Phillips L. Depression, anxiety, PTSD and comorbidity in perinatal women in Turkey: a longitudinal population-based study. *Midwifery*. 2017; 55: 29–37.
- [3] Petersen IB, Quinlivan JA. Fatherhood too soon. Anxiety, depression and quality of life in fathers of preterm and term babies: a longitudinal study. *Journal of Psychosomatic Obstetrics and Gynaecology*. 2021; 42: 162–167.
- [4] World Health Organization. WHO recommendations on maternal and newborn care for a positive postnatal experience. Geneva: World Health Organization. 2022.
- [5] Yuksel B, Ital I, Balaban O, Kocak E, Seven A, Kucur SK, *et al.* Immediate breastfeeding and skin-to-skin contact during cesarean section decreases maternal oxidative stress, a prospective randomized case-controlled study. *Journal of Maternal-Fetal and Neonatal Medicine*. 2016; 29: 2691–2696.
- [6] Widström AM, Brimdyr K, Svensson K, Cadwell K, Nissen E. Skin-to-skin contact the first hour after birth, underlying implications and clinical practice. *Acta Paediatrica*. 2019; 108: 1192–1204.
- [7] Aryeetey R, Dykes F. Global implications of the new who and UNICEF implementation guidance on the revised Baby-Friendly Hospital Initiative. *Maternal & Child Nutrition*. 2018; 14: e12637.
- [8] Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*. 1983; 67: 361–370.
- [9] Herrero MJ, Blanch J, Peri JM, De Pablo J, Pintor L, Bulbena A. A validation study of the hospital anxiety and depression scale (HADS) in a Spanish population. *General Hospital Psychiatry*. 2003; 25: 277–283.
- [10] Hawker GA, Mian S, Kendzerska T, French M. Measures of adult pain: Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP). *Arthritis Care & Research*. 2011; 63: S240–S252.
- [11] Romano M, Cacciatore A, Giordano R, La Rosa B. Postpartum period: three distinct but continuous phases. *Journal of Prenatal Medicine*. 2010; 4: 22–25.
- [12] Mykletun A, Stordal E, Dahl AA. Hospital Anxiety and Depression (HAD) scale: Factor structure, item analyses and internal consistency in a large population. *The British Journal of Psychiatry*. 2001; 179: 540–544.
- [13] Fahey JO. Best Practices in Management of Postpartum Pain. *The Journal of Perinatal & Neonatal Nursing*. 2017; 31: 126–136.
- [14] Young HN, Bell RA, Epstein RM, Feldman MD, Kravitz RL. Physicians' Shared Decision-Making Behaviors in Depression Care. *Archives of Internal Medicine*. 2008; 168: 1404–1408.
- [15] Chinkam S, Ibrahim BB, Diaz B, Steer-Massaró C, Kennedy HP, Shorten A. Learning from women: Improving experiences of respectful maternity care during unplanned caesarean birth for women with diverse ethnicity and racial backgrounds. *Women and Birth*. 2023; 36: e125–e133.
- [16] Hutchens BF, Holland ML, Tanner T, Kennedy HP. Does Perceived Quality of Care Moderate Postpartum Depression? A Secondary Analysis of a Two-Stage Survey. *Maternal and Child Health Journal*. 2021; 25: 613–625.
- [17] WHO and UNICEF. Implementation Guidance: Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: implementing the revised Baby-friendly Hospital Initiative. World Health Organization and the United Nations Children's Fund (UNICEF). 2018.
- [18] Arifunhera JH, Srinivasaraghavan R, Sarkar S, Kattimani S, Adhisivam B, Vishnu Bhat B. Is maternal anxiety a barrier to exclusive breastfeeding? *The Journal of Maternal-Fetal & Neonatal Medicine*. 2016; 29: 2798–2801.
- [19] Taha Z, Ali Hassan A, Wikkeling-Scott L, Papandreou D. Prevalence and associated factors of caesarean section and its impact

on early initiation of breastfeeding in Abu Dhabi, United Arab Emirates. *Nutrients*. 2019; 11: 2723.

- [20] Höflich A, Kautzky A, Slamanig R, Kampshoff J, Unger A. Depressive symptoms as a transdiagnostic mediator of mother-to-infant bonding: Results from a psychiatric mother-baby unit. *Journal of Psychiatric Research*. 2022; 149: 37–43.
- [21] Edmonds JK, Declercq E, Sakala C. Women's childbirth experiences: A content analysis from the Listening to Mothers in California survey. *Birth*. 2021; 48: 221–229.
- [22] Moore JE, Titler MG, Kane Low L, Dalton VK, Sampsel CM. Transforming Patient-Centered Care: Development of the Evidence Informed Decision Making through Engagement Model. *Women's Health Issues*. 2015; 25: 276–282.
- [23] Declercq ER, Belanoff C, Sakala C. Intrapartum Care and Experiences of Women with Midwives Versus Obstetricians in the Listening to Mothers in California Survey. *Journal of Midwifery & Women's Health*. 2020; 65: 45–55.
- [24] Sorrentino F, Greco F, Palieri T, Vasciaveo L, Stabile G, Carlucci S, *et al.* Caesarean Section on Maternal Request-Ethical and Juridic Issues: A Narrative Review. *Medicina (Kaunas)*. 2022; 58: 1255.
- [25] Beato AF, Albuquerque S, Kömürçü Akik B, da Costa LP, Salvador Á. Do Maternal Self-Criticism and Symptoms of Postpartum Depression and Anxiety Mediate the Effect of History of Depression and Anxiety Symptoms on Mother-Infant Bonding? Parallel-Serial Mediation Models. *Frontiers in Psychology*. 2022; 13: 858356.
- [26] Schaal NK, Hepp P, Heil M, Wolf OT, Hagenbeck C, Fleisch M, *et al.* Perioperative anxiety and length of hospital stay after caesarean section – a cohort study. *European Journal of Obstetrics, Gynecology and Reproductive Biology*. 2020; 248: 252–256.
- [27] Koo V, Lynch J, Cooper S. Risk of postnatal depression after emergency delivery. *The Journal of Obstetrics and Gynaecology Research*. 2003; 29: 246–250.
- [28] Stoll K, Swift EM, Fairbrother N, Nethery E, Janssen P. A systematic review of nonpharmacological prenatal interventions for pregnancy-specific anxiety and fear of childbirth. *Birth*. 2018; 45: 7–18.
- [29] Rizzo A, Bruno A, Torre G, Mento C, Pandolfo G, Cedro C, *et al.* Subthreshold psychiatric symptoms as potential predictors of postpartum depression. *Health Care for Women International*. 2022; 43: 129–141.
- [30] Sangkum L, Thamjamrassri T, Arnuntasapakul V, Chalacheewa T. The Current Consideration, Approach, and Management in Postcesarean Delivery Pain Control: a Narrative Review. *Anesthesiology Research and Practice*. 2021; 2021: 2156918.
- [31] Bonnot Fazio S, Dany L, Dahan S, Tosello B. Communication, information, and the parent–caregiver relationship in neonatal intensive care units: a review of the literature. *Archives de Pédiatrie*. 2022; 29: 331–339.
- [32] Shovers SM, Bachman SS, Popek L, Turchi RM. Maternal postpartum depression: risk factors, impacts, and interventions for the NICU and beyond. *Current Opinion in Pediatrics*. 2021; 33: 331–341.
- [33] Creeley CE, Denton LK. Use of Prescribed Psychotropics during Pregnancy: A Systematic Review of Pregnancy, Neonatal, and Childhood Outcomes. *Brain Sciences*. 2019; 9: 235.