

Relationship between sleep disturbances within 24 hours after cesarean delivery and postpartum depression: a retrospective cohort study



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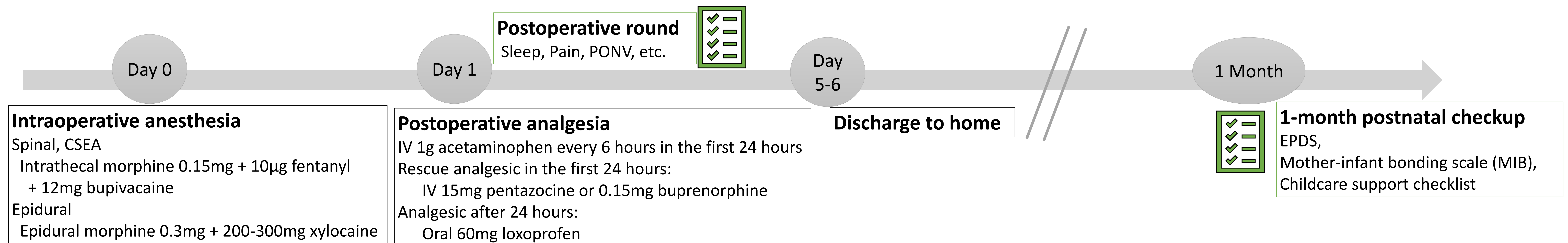
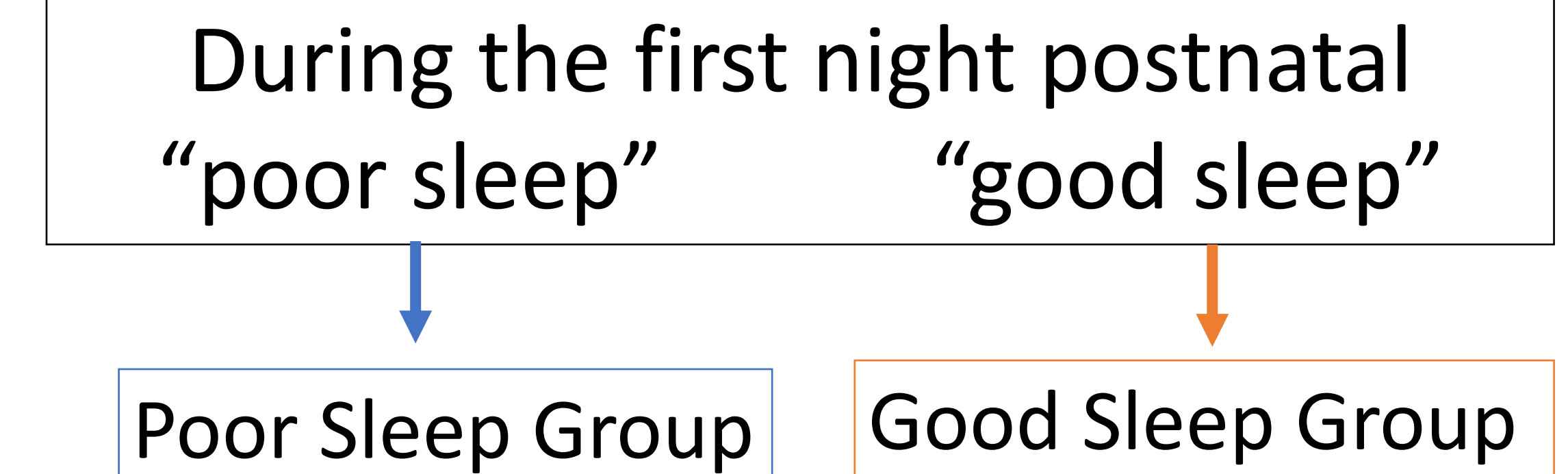
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Introduction

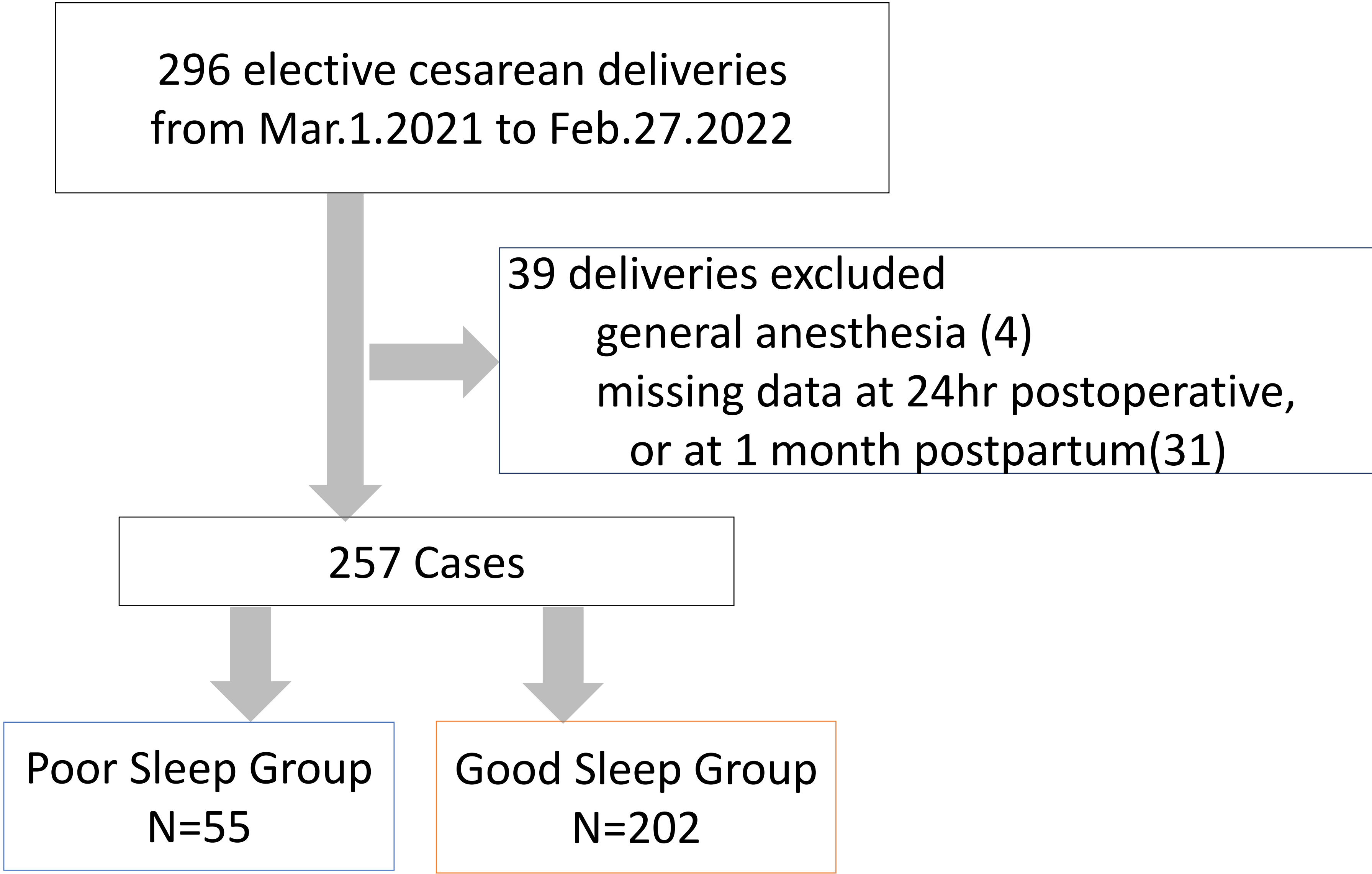
- Postpartum depression (PPD) is a major depressive disorder that affects over 17% of postnatal women globally⁽¹⁾.
- The condition has been linked to psychosocial stressors, hormonal changes, and sleep disturbances⁽²⁾.
- Study aim: To investigate the potential association between sleep disturbances within the first day after cesarean delivery and development of PPD.

Methods

- Retrospective observational study at a single tertiary perinatal center in Japan.
- Inclusion criteria: Elective cesarean deliveries performed under neuraxial anesthesia, >36 weeks gestation.
- Postnatal sleep was assessed at postoperative anesthesia round on the first postoperative day.
- The Edinburgh Postnatal Depression Scale (EPDS) was used for screening PPD, at one month after delivery (Cut off value =9 in Japan).
- Propensity score matching analysis with parity, age, BMI, psychiatric disorders, psychiatric medication use, and postoperative NRS.



Results



After propensity score matching, significant differences between the groups were observed in

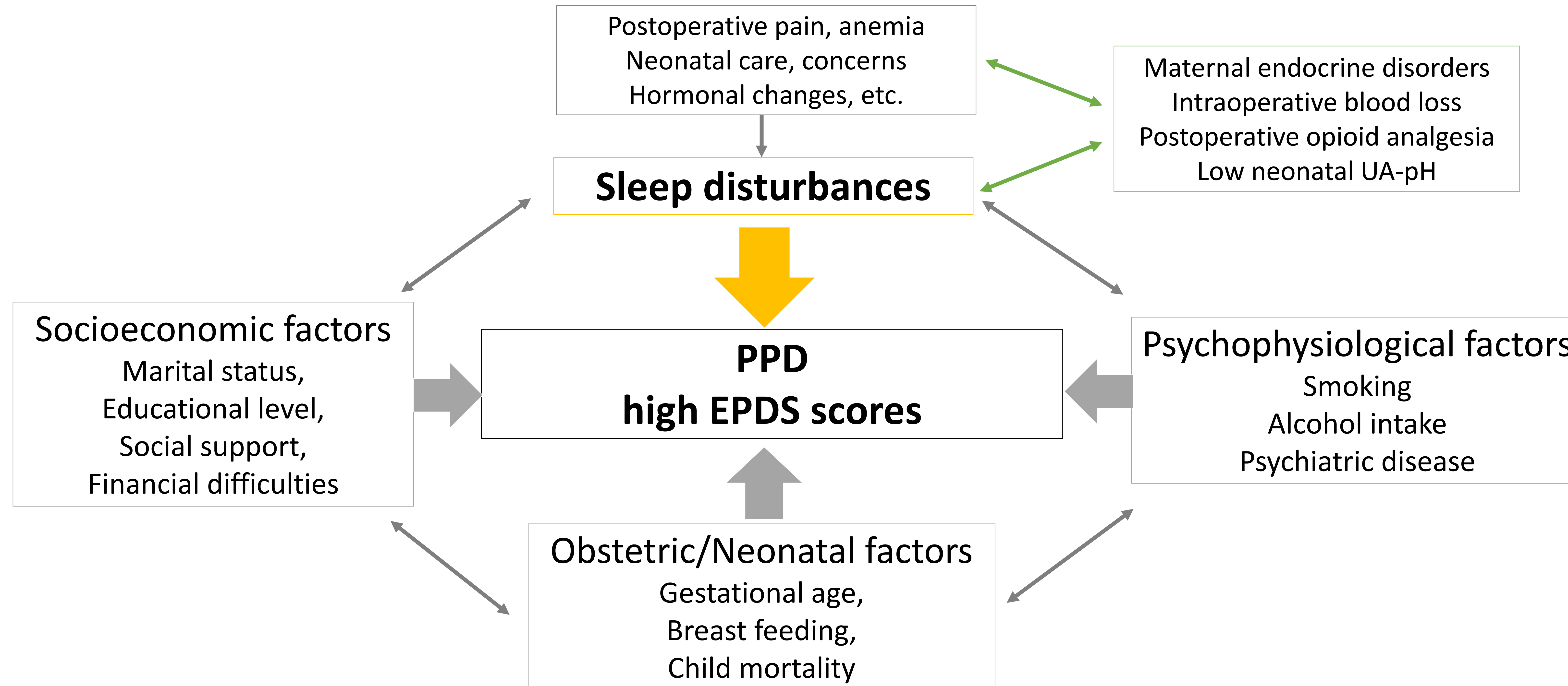
- Maternal endocrine disorders
- Intraoperative blood loss
- Postoperative requirement of rescue opioid analgesia
- Neonatal UA-pH
- 1 month postnatal, EPDS total score
- 1 month postnatal, incidence of EPDS ≥ 9

Variables and outcomes	Crude			Propensity score matching		
	Poor Sleep	Good Sleep	p value	Poor Sleep	Good Sleep	p value
Patient characteristics						
Age, yr (SD)	34.8 (5.01)	33.8 (4.86)	0.209	34.5 (4.88)	34.5 (4.97)	0.926
BMI, kg/m ² (SD)	24.6 (3.23)	26.0 (4.67)	0.033	24.6 (3.28)	25.0 (3.48)	0.498
Multipara, n (%)	31 (56.4)	129 (63.9)	0.309	29 (55.8)	51 (51.0)	0.576
HDP, n (%)	3 (5.5)	19 (9.4)	0.353	2 (3.8)	7 (7.0)	0.435
DM, n (%)	5 (9.1)	24 (11.9)	0.562	4 (7.7)	12 (12.0)	0.412
Endocrine disease, n (%)	10 (18.2)	8 (4.6)	<0.001	8 (15.4)	4 (4.0)	0.014
Psychiatric disorder, n (%)	7 (12.7)	9 (4.5)	0.024	5 (9.6)	7 (7.0)	0.571
Psychiatric medication use, n (%)	4 (7.3)	5 (2.5)	0.086	2 (3.8)	4 (4.0)	0.963
ASA-PS>2, n (%)	0 (0.0)	9 (4.5)	0.111	0 (0.0)	1 (1.0)	0.469
Intraoperative management						
Sedatives, n (%)	10 (18.2)	36 (17.8)	0.951	8 (15.4)	19 (19.0)	0.580
Rescue analgesics, n (%)	6 (10.9)	34 (16.8)	0.283	5 (9.6)	15 (15.0)	0.352
Blood loss, g (SD)	1364 (733)	1212 (550)	0.093	1391 (735)	1176 (598)	0.035
Transfusion, n (%)	4 (7.3)	5 (2.5)	0.086	4 (7.7)	3 (3.0)	0.190
Postoperative management						
POD1 Hb, g/dl (SD)	10.6 (1.52)	10.5 (1.31)	0.557	10.6 (1.52)	10.6 (1.34)	0.781
Maximum pain NRS $\leq$ 24hrs (SD)	5.5 (1.84)	4.8 (1.79)	0.019	5.5 (1.87)	5.1 (1.50)	0.119
NRS>3, n (%)	48 (87.3)	150 (74.3)	0.042	45 (86.5)	88 (88.0)	0.796
NRS>5, n (%)	22 (40.0)	65 (32.2)	0.277	22 (42.3)	36 (36.0)	0.448
Opioid rescue, n (%)	18 (32.7)	29 (14.4)	0.002	17 (32.7)	18 (18.0)	0.041
Opioid dose $\leq$ 24hrs (morphine equivalent), mg (SD)	8.3 (4.85)	6.1 (2.44)	0.037	8.5 (4.93)	6.1 (2.74)	0.080
Narcotic medication, n (%)	10 (18.2)	37 (18.3)	0.982	9 (17.3)	15 (15.0)	0.711
Nurse visit during night, times (SD)	5.0 (1.5)	5.4 (1.4)	0.095	5.2 (1.4)	5.3 (1.3)	0.523
Neonatal data						
Birth weight, kg (SD)	2546.3 (366.8)	2649.8 (423.6)	0.056	2549.5 (368.6)	2642.2 (398.2)	0.565
Apgar score 5min (SD)	8.7 (0.64)	8.7 (0.88)	0.720	8.7 (0.63)	8.7 (0.79)	0.969
UA-pH (SD)	7.2 (0.15)	7.3 (0.12)	0.044	7.2 (0.15)	7.3 (0.12)	0.036
NICU admission, n (%)	28 (36.8)	62 (25.7)	0.061	25 (34.7)	30 (25.6)	0.182
One-month postpartum outcomes						
EPDS (SD)	6.6 (5.21)	4.0 (3.87)	<.0001	6.3 (4.88)	4.5 (3.42)	0.008
EPDS ≥ 9 , n (%)	17 (30.9)	27 (13.4)	0.002	15 (28.8)	13 (13.0)	0.017
EPDS ≥ 13 , n (%)	5 (9.1)	6 (3.0)	0.047	4 (7.7)	3 (3.0)	0.190
MIB (SD)	1.9 (1.69)	1.5 (1.81)	0.133	1.7 (1.50)	1.7 (1.85)	0.891

BMI: body mass index, HDP: Hypertensive Disorder of Pregnancy, DM: Diabetes Mellitus, ASA-PS: ASA Physical Status Classification System, POD1: postoperative day-1, NRS: numeric rating scale, EPDS: Edinburgh Postnatal Depression Scale, UA-pH: umbilical artery pH, MIB: Mother-infant bonding scale

Discussion

Disturbed sleep during the first day after cesarean delivery was independently associated with PPD, even after accounting for potential confounding factors.



Limitations

- Being observational
- Not using systemic measurement tools to assess sleep disturbances
- Not following up with all women who had high EPDS scores postpartum

Future studies should

- Consider socioeconomic confounding factors
- Use both subjective and objective measures to assess sleep disturbances

Conclusion

Sleep disturbance on the day of cesarean delivery may be a potential risk factor for the development of PPD.

References

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