

Association Between Postoperative Opioid Exposure & Postpartum Depressive Symptoms Following Cesarean Section

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Background

- 13.2% of postpartum women report symptoms of postpartum depression (PPD)¹
- PPD often underreported and underrecognized²
- Contributes significantly to maternal morbidity and quality of life
- Antepartum depression has been associated with increased postpartum opioid use³

Aim

- Opioids remain widely used for post cesarean delivery pain
- However, the relationship between postpartum inpatient and outpatient opioid use & PPD symptoms remains poorly understood

Hypothesis

Postpartum patients exposed to inpatient and/or outpatient opioids will have increased PPD symptoms as evidenced by increased Edinburgh Postnatal Depression Scale (EPDS) score

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Study Design

- Retrospective cohort study
- Urban academic medical center
- Years 2018 and 2023

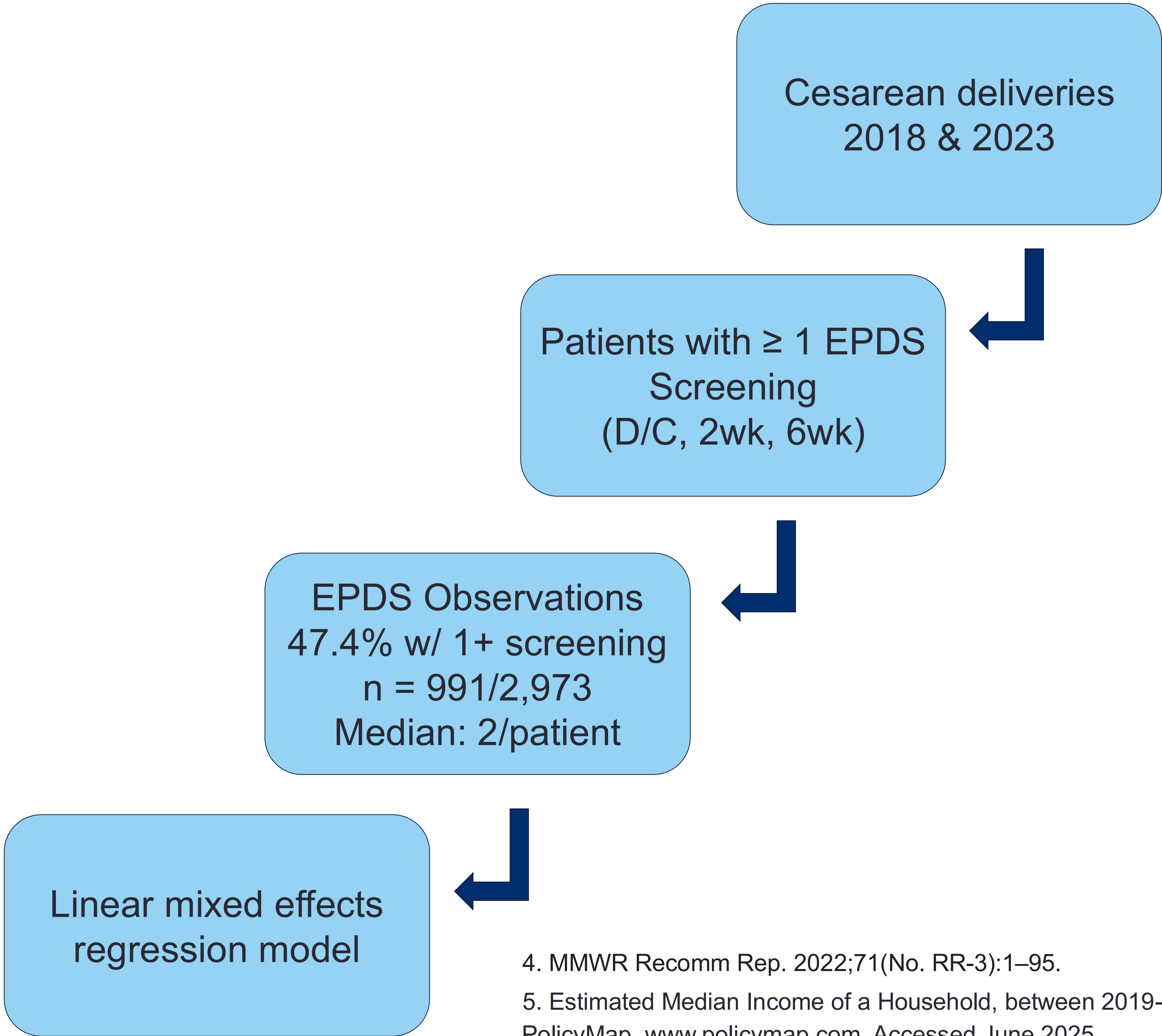
Population

- Patients > 19 years undergoing cesarean deliveries with ≥ 1 EPDS screening
- Exclusion Criteria: post-operative hysterectomy, postpartum stay > 10 days, & chronic opioid use
- 2,124 eligible patients after criteria applied

Outcome

- Opioids standardized to MMEs⁴
- Depressive symptoms measured using EPDS
- EPDS collected at D/C, 2, and 6 weeks postpartum
- Covariates: Hx of depression, age, BMI, ethnicity, income⁵, order set implementation, and follow-up time

Study Flowchart



4. MMWR Recomm Rep. 2022;71(No. RR-3):1–95.

5. Estimated Median Income of a Household, between 2019-2023. PolicyMap. www.policymap.com. Accessed June 2025.

Inpatient Opioid Administration	Estimate	SE	P
Intercept	5.08	0.99	<.001
EPDS Time (per 1-week)	-0.12	0.03	<.001
History of Depression	3.02	0.45	<.001
Zip Associated Median Household Income *	-0.01	<.01	.020
Total Inpatient MMEs **	0.08	0.02	<.001
Year (2023 vs 2018)	0.34	0.37	.361
Outpatient Opioid Prescription	Estimate	SE	P
Intercept	5.40	0.99	<.001
EPDS Time (per 1-week)	-0.12	0.03	<.001
History of Depression	3.12	0.45	<.001
Zip Associated Median Household Income *	-0.01	<.01	.011
Total Outpatient MMEs **	0.04	0.01	.004
Year (2023 vs 2018)	0.08	0.41	.839

Table 1. Effects on EPDS Score by Predictor

* Per 1000 dollar
** Per 7.5 MME increased dose

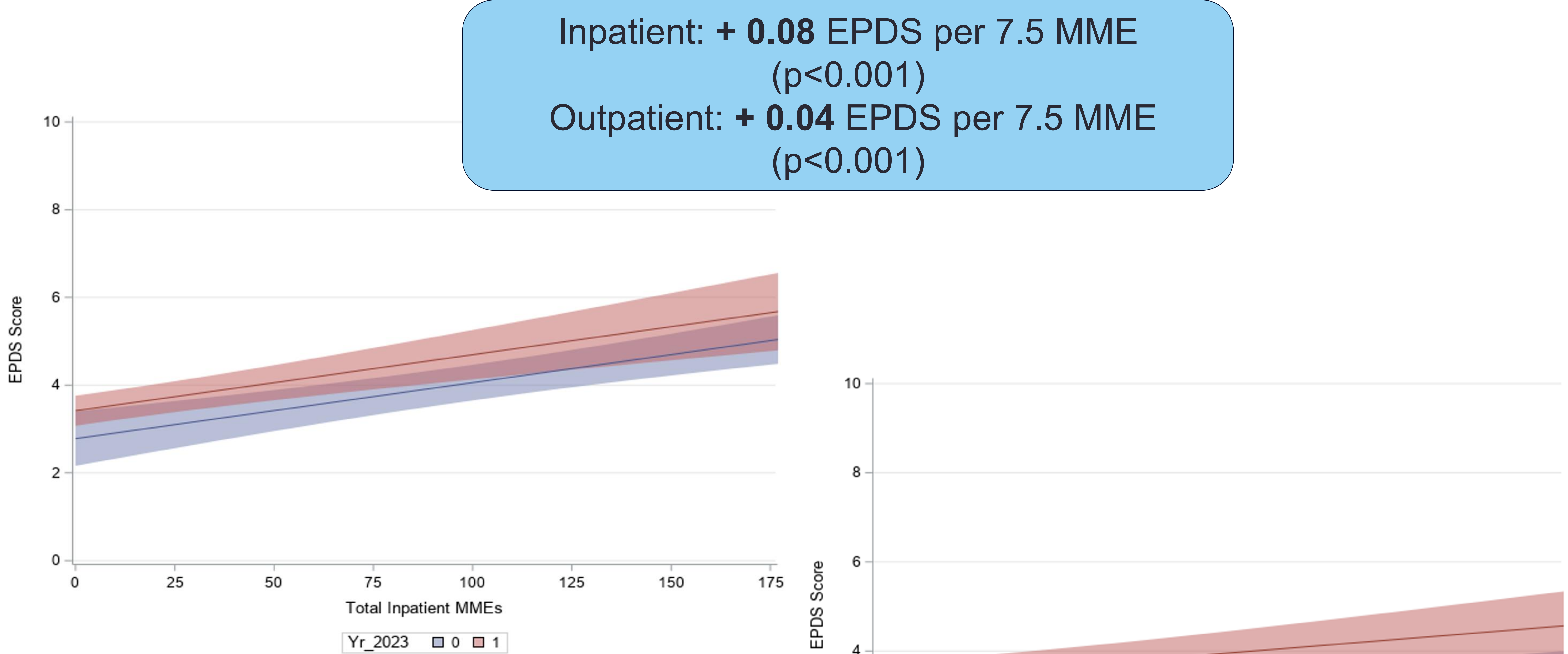


Figure 1. EPDS Score by Total Inpatient MMEs Administered

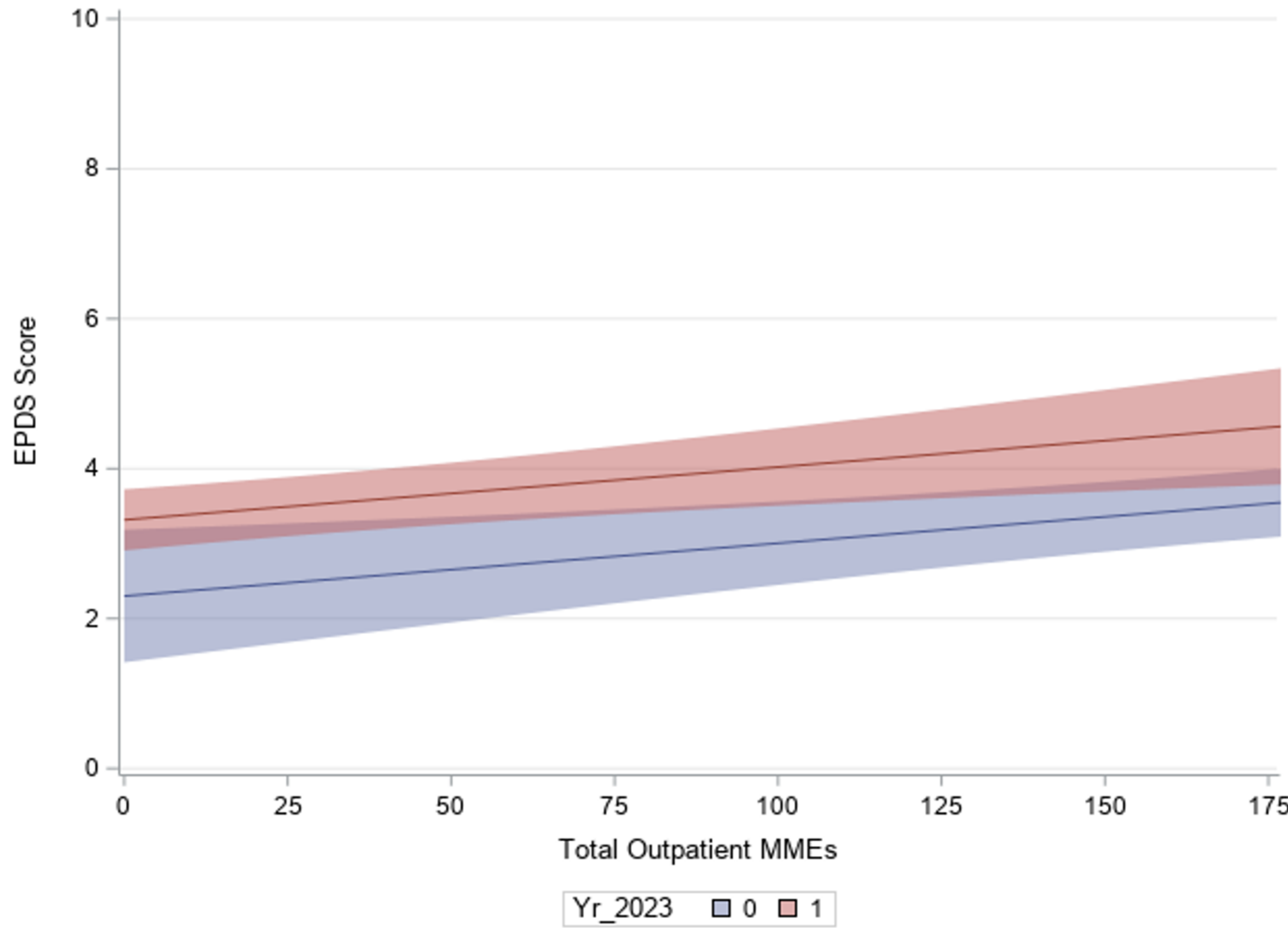


Figure 2. EPDS Score by Total Outpatient MMEs Prescribed

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Key Findings

- Postpartum opioid exposure may represent a modifiable risk factor for maternal mental health
- Higher opioid exposure was associated with increased postpartum EPDS scores
- History of depression was strongest predictor
- Inpatient MMEs demonstrated a greater association than outpatient MMEs
- Outpatient prescribing may not reflect actual opioid consumption

↑ **EPDS:** History of Depression, inpatient & outpatient exposure

↓ **EPDS:** Higher income, later postpartum screening

Discussion

- The magnitude of association was modest but clinically relevant
- Minimizing unnecessary opioid exposure after cesarean delivery may support postpartum mental health

Limitations

- Retrospective, single-center design
- Limited EPDS follow-up data
- Potential residual confounding
- Future studies with improved documentation and adherence to EDPS screening