

Socioeconomic Status and Postpartum Depression Among Commercial Health Insurance Enrollees

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BACKGROUND

Postpartum depression (PPD) is a prevalent psychological condition. Although the effect of obstetrical and maternal complications on PPD are well described, the impact of socioeconomic status (SES) on PPD is relatively unexplored.

OBJECTIVES

To investigate the effect of SES on PPD among commercial health insurance enrollees.

METHODS

In a retrospective cohort study, we constructed a summary measure of SES for each US zip code using data on income, education, and occupation from the 5-year estimates for 2021 US Census data and linked the data to national commercial claims for the years 2017-2023.



Exclusion Criteria

- Women who delivered (ICD-10: O80-O84) during the identification period (January 2018–July 2022)
- Women were required to be in the data continuously for 12 months pre-index date and post-index date
- Women with prenatal depression disorder during the baseline period
- PPD status was determined using diagnosis codes at outpatient and inpatient visits as well as prescription drug use during the 3-, 6-, 9-, and 12-month postpartum period.
- Descriptive analysis
 Multivariable analysis was utilized to control for age,
- Multivariable analysis was utilized to control for age, comorbidity index, obstetrical and maternal complications, and lifestyle risk factors

PPD: postpartum depression

Analytical Methods

RESULTS

The prevalence of PPD in a national commercial claims population was 11.48%. Among patients with PPD during the 12-month period after childbirth, 45% of the PPD events occurred in the first 3 months (Figure 1).

Figure 1. Distribution of PPD Rates During Follow-up Intervals 1 Year Postpartum

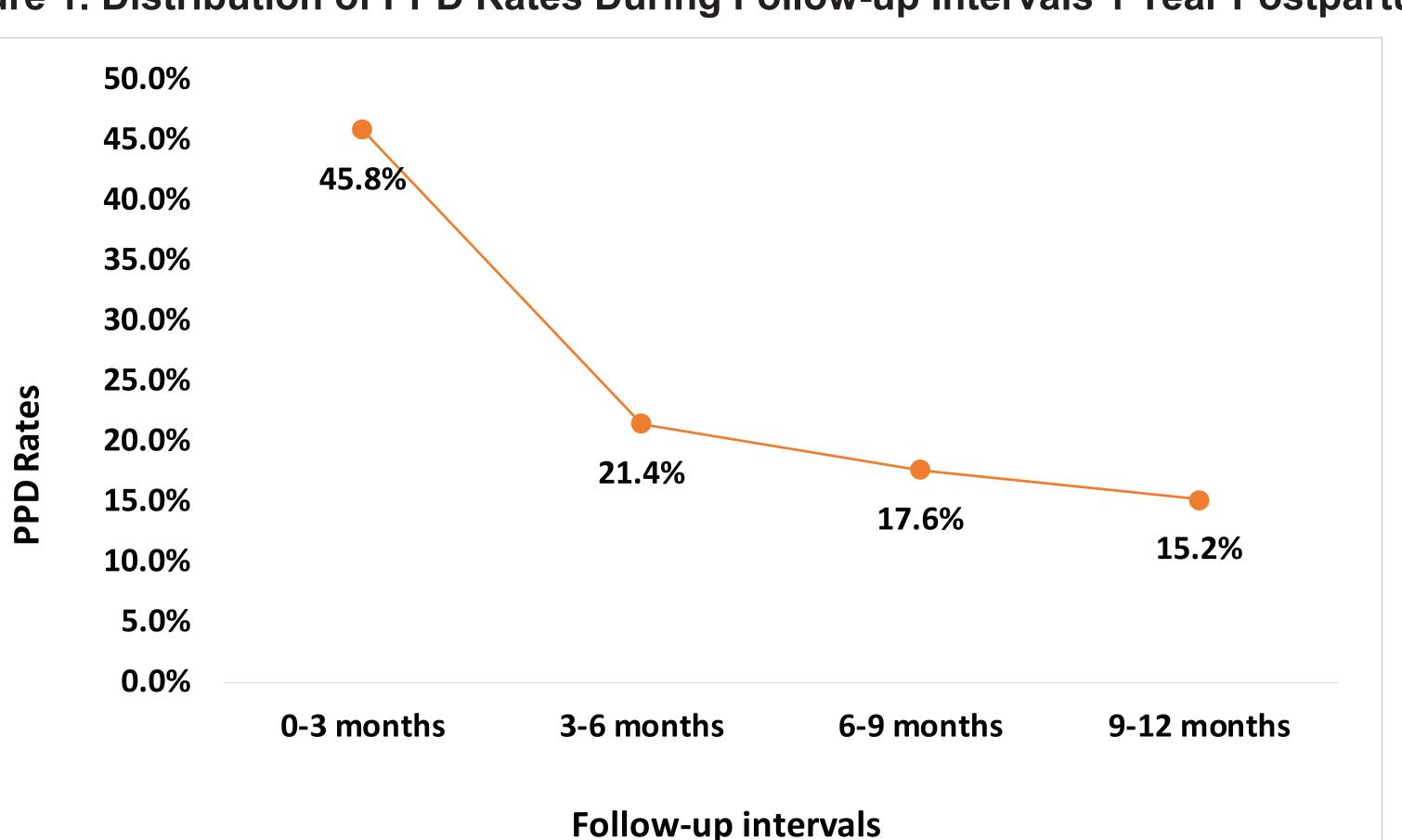


Table 1. Characteristics of US Zip Codes of Commercially Enrolled Patients by Summary SES Score Tercile

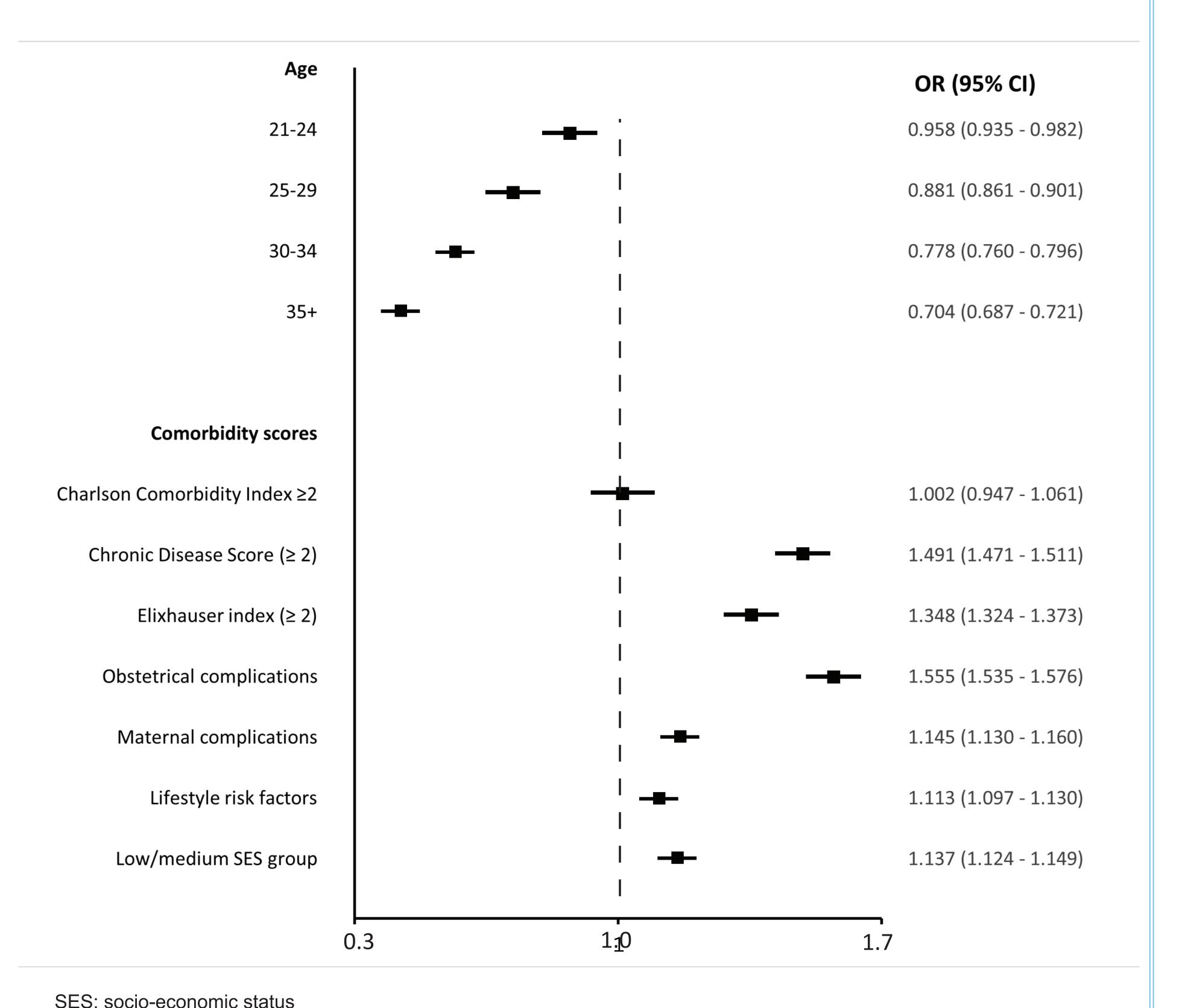
Commercial Patient Population	1 (Low)	2 (Middle)	3 (High)	
No. patients	498,782	498,745 513,852		
Median SES summary score (range)	1.1600	4.6532	9.0973	
	(-10.6320 ; 3.0356)	(3.0357; 6.5527)	(6.5533; 23.0279)	
Wealth/Income				
Median household income (\$)	\$50,895	\$70,215	\$105,802	
Median value of housing unit (\$)	\$154,400	\$250,300	\$465,000	
Household with interest, dividend, or rental income (%)	12.06%	19.59%	29.22%	
Education				
Adult residents who completed at least high school (%)	84.00%	92.30%	96.00%	
Adult residents who completed at least college (%)	19.20%	34.00%	56.90%	
Employment				
Employed residents with management, professional, and related occupation (%)	29.04%	40.50%	56.79%	

SES: socio-economic status

Patients with PPD had a higher rate of obstetrical (odds ratio [OR]: 1.56, p<0.0001) and maternal complications (OR: 1.14, p<0.0001) and more lifestyle risk factors including vitamin deficiencies, sleep disorders, and smoking (OR: 1.11, p<0.0001) (Figure 2).

RESULTS (cont'd)





OLO. 30010-00011110 Status

Overall, patients with PPD were also sicker based on comorbidity indices.

SES score was significantly lower in patients with PPD than those without (4.87 vs 5.23, p<0.0001) (Table 2).

After controlling for age and clinical factors, residing in a disadvantaged neighborhood was found to be associated with an increased incidence of PPD among commercially insured patients (OR: 1.14, p<0.001).

RESULTS (cont'd)

Table 2. Baseline Characteristics of Women With and Without PPD Within 12 Months of Delivery

	Commercial Patient Population							
		PPD (N = 173,416)		Without PPD (N = 1,337,963)		Std. Diff.		
Characteristics	N/Mean	%/SD	N/Mean	%/SD				
Age (years)	29.43	5.69	30.13	5.65	<0.0001	0.1233		
≤20	10,414	6.01%	64,151	4.79%	<0.0001	0.055		
21-24	26,526	15.30%	172,146	12.87%	<0.0001	0.071		
25-29	49,551	28.57%	357,521	26.72%	<0.0001	0.041		
30-34	53,193	30.67%	442,599	33.08%	<0.0001	0.051		
35+	33,732	19.45%	301,546	22.54%	<0.0001	0.074		
Comorbidity Scores								
Charlson Comorbidity Index score (≥2)	1,604	0.92%	7,471	0.56%	<0.0001	0.047		
Chronic disease score (≥2)	33,324	19.22%	171,937	12.85%	<0.0001	0.186		
Elixhauser Index score (≥2)	20,577	11.87%	98,113	7.33%	<0.0001	0.168		
SES								
SES Score	4.87	4.11	5.23	4.43	<0.0001	0.083		
Median household income (\$)	\$75,467	\$30,338	\$78,295	\$32,527	<0.0001	0.087		
Median value of housing unit (\$)	\$312,677	\$227,555	\$352,525	\$258,991	<0.0001	0.155		
Household with interest, dividend, or rental income (%)	0.21	0.09	0.21	0.10	<0.0001	0.036		
Adult residents who completed at least high school (%)	89.76	7.76	89.45	8.24	<0.0001	0.038		
Adult residents who completed at least college (%)	36.04	18.31	37.88	18.93	<0.0001	0.097		
Employed residents with management, professional, and related occupation (%)	41.54	13.73	42.77	14.36	<0.0001	0.085		
Baseline Characteristics								
Obstetrical complications	143,011	82.47%	986,353	73.72%	<0.0001	0.201		
Maternal complications	38,248	22.06%	236,939	17.71%	<0.0001	0.112		
Lifestyle risk factors	29,896	17.24%	174,547	13.05%	< 0.0001	0.122		

SES: socio-economic status

CONCLUSION

The inverse and significant effect of area-based high SES score based on PPD rates demonstrates that effective efforts for preventing PPD may require interventions that focus on patients and their environment.

REFERENCES

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- 2. Agrawal I, Mehendale AM, Malhotra R. Risk factors of postpartum depression. *Cureus*. 2022;14(10):e30898.



