

Adjusted odds of adverse perinatal outcomes among infants of Hispanic women versus non-Hispanic White women

	Prevalence		Observational cohort		Mild untreated GDM		Mild treated GDM	
	n (%) or median [IQR]		aOR (95% CI) or β coefficient \pm SE (p-value)*					
Primary composite outcome**	565	(33.5)	1.64	(1.14, 2.37)	1.23	(0.75, 2.04)	1.44	(0.84, 2.45)
Preterm birth <37 weeks	160	(9.1)	1.39	(0.69, 2.80)	0.57	(0.27, 1.22)	0.93	(0.43, 2.03)
Birthweight (g)	3375	[3070-3705]	35	\pm 42 (0.41)	48	\pm 68 (0.48)	-24	\pm 59 (0.68)
SGA (<10 th percentile)	117	(6.7)	0.70	(0.36, 1.36)	1.0	(0.36, 2.78)	1.0	(0.42, 2.37)
LGA (>90 th percentile)	189	(10.8)	1.23	(0.71, 2.14)	0.95	(0.48, 1.88)	0.97	(0.36, 2.62)
Macrosomia >4000g	180	(10.3)	1.18	(0.68, 2.07)	1.05	(0.55, 2.02)	1.36	(0.46, 3.97)
Gestational htn/Pre-eclampsia	180	(10.3)	0.77	(0.44, 1.34)	1.56	(0.74, 3.28)	1.68	(0.67, 4.20)

* aOR (95% CI) is adjusted odds ratio (95% confidence interval); SE = standard error; p<0.05 significant; variables included in models: screening glucose load test results, gestational age at enrollment, pre-pregnancy body mass index, maternal age at enrollment, parity, tobacco use in current pregnancy

** primary composite outcome: stillbirth, neonatal death, hypoglycemia, hyperbilirubinemia, neonatal hyperinsulinemia, birth trauma

557 Potentiation of adverse pregnancy outcomes among obese women exposed to environmental air particulate pollutants (PM2.5 variant)

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OBJECTIVE: We investigated whether the effects of ambient air particulate pollutants (PM2.5 variant) on birth outcomes are aggravated by maternal obesity.

STUDY DESIGN: This retrospective cohort study utilized data from 2004 through 2007 based on three longitudinally linked databases: (1) Florida Hospital Discharge database; (2) Vital statistics records of singleton live births in Florida; and (3) Air pollution and meteorological data from the Environmental Protection Agency (EPA). Using computerized mathematical modeling, we assigned exposure values of PM2.5 (ambient particles 2.5 micrometers in diameter and smaller) to mothers over the period of pregnancy based on Euclidean minimum distance from the air pollution monitoring sites. The primary outcomes of interest were preterm birth (moderate, severe and extreme) and infant macrosomia. We also examined the variance in outcomes by maternal pre-pregnancy obesity status. We generated adjusted odds ratios (AOR) and confidence intervals (CI) with correction for intracluster correlation using the generalized estimating equation (GEE).

RESULTS: Exposure to PM2.5 above-median population values was associated with increased risk for preterm birth among both obese (BMI>30) and non-obese mothers (BMI <30) [Table]. Regardless of

the severity of the preterm, the effects of PM2.5 were more pronounced among obese mothers, with the worst potentiation of risk noted for extremely preterm birth (AOR=2.89; 95% CI=2.43-3.45). Risk elevation for macrosomia as a result of exposure to PM2.5 was only observed among infants of obese mothers (AOR=1.05; 95% CI=1.03-1.07).

CONCLUSION: Maternal obesity widens the risk for preterm (especially, extremely preterm) birth and infant macrosomia resulting from exposure to PM2.5. These new findings identify obese mothers as a high-risk group particularly vulnerable to the adverse effects of PM2.5 pollutants.

Table: Adjusted odds ratios and 95% confidence intervals of women who were obese versus those who were non-obese categorized by exposure status in Hillsborough County, Florida (2004-2007)^a

	PM _{2.5} ^b	
	Non-obese ^b	Obese ^b
All preterm	1.10 (1.03-1.17)	1.17(1.13-1.21)
Moderate Preterm Birth	1.10 (1.02-1.19)	1.12 (1.10-1.13)
Severe Preterm Birth	1.13 (1.03-1.24)	1.15 (0.81-1.65)
Extreme Preterm Birth	0.97 (0.57-1.66)	2.89 (2.43-3.45)
Macrosomia	0.90 (0.85-0.95)	1.05 (1.03-1.07)

^a Estimates were generated using GEE and adjusted by demographic variables and pregnancy complications, including the gender of the infant, year of birth of the infant. Observations in the GEE model were assumed to be clustered around the measuring stations of the particulate matter.

^b Referent group: non-obese women not exposed to PM_{2.5}