

Association of Breastfeeding and Sugar-Sweetened Beverage Consumption with Obesity Prevalence in Offspring Born to Mothers with and Without Gestational Diabetes Mellitus (P11-098-19)

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Objectives: Prenatal and early life factors such as Gestational Diabetes Mellitus (GDM), exclusive breastfeeding (EBF), and early exposure to sugar-sweetened beverages (SSBs) may contribute to obesity in children. The relationship of EBF and SSBs with obesity prevalence in children exposed to GDM has rarely been evaluated. This study examined the association of EBF and early SSBs consumption with obesity prevalence in children (1-5y) born to mothers with and without GDM.

Methods: This study used data from the 2014 Los Angeles County Women, Infants, and Children(WIC) Survey, which included 3,707 mothers and their children (1-5y). Infants (1-2y) with weight-for-height $\geq 97.7^{\text{th}}$ percentile were classified as subjects with high weight-for-length and children (2-5y) were classified as subjects with obesity if their BMI-for-age was $\geq 95^{\text{th}}$ percentile.

Results: The individual and combination interaction effects of GDM, SSBs intake, and EBF on obesity prevalence were all significant

($P < 0.05$). Compared to GDM offspring, with low SSBs intake, and who were EBF (referent), those who were GDM, with high SSBs intake and who were EBF had approximately a five-fold increase in odds of obesity (OR = 4.77, 95%CI 1.55-8.60, $P = 0.03$). Compared to the GDM referent group, GDM offspring who were not EBF with low and high SSBs intake had 4.3- and 4.4-times higher odds of obesity, respectively (OR = 4.33, 95%CI 1.42- 8.07, $P = 0.01$; OR = 4.38, 95%CI 1.39- 8.16, $P = 0.01$). Using non-GDM, EBF and low SSBs as referent, those who were not EBF, with either high or low SSBs had approximately a 4-fold increase in odds of obesity (OR = 3.62, 95%CI: 2.16-6.05, $P < 0.0001$; OR = 3.83, 95%CI: 2.26-6.48, $P < 0.0001$). Compared to the non-GDM referent group, those who were EBF and had high SSBs intake had 77% higher odds of obesity (OR = 1.77, 95%CI 0.93-3.37, $P = 0.001$).

Conclusions: In non-GDM offspring, EBF was protective against odds of obesity in both high and low SSBs consumers. In GDM offspring, EBF was only protective against obesity when SSBs intake was low. Surprisingly, GDM offspring who were EBF and had high SSBs consumption had a 4- to 5-fold increase in odds of obesity compared to those not EBF with either low or high SSBs intake. These results suggest that interventions should focus on the combined protective effects of EBF and low SSBs intake, particularly in GDM offspring.

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