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Does the impact of a plant-based diet during pregnancy on birthweight differ by ethnicity?

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Birthweight is an indicator of newborn health[(1)] and a strong predictor of health outcomes in later life, including cardiovascular disease, diabetes, and obesity[(2)]. Significant variation in dietary intake during pregnancy between ethnic groups[(3)] provides an ideal opportunity to investigate the influence of maternal diet on birthweight. We aimed to investigate the impact of maternal dietary patterns on birthweight in four multi-ethnic birth cohorts in Canada.

We analyzed 3,997 full-term mother-infant pairs from diverse ethnic groups. Multivariable regression was used to test the association between 3 principal component analysis-derived diet patterns (plant-based, Western, health-conscious) and birthweight. The foods comprising significant diet patterns were investigated to identify key foods contributing to this association.

No associations were identified between the Western and health-conscious diet patterns and birthweight; however, the plant-based dietary pattern was inversely associated with birthweight ($\beta = -67{\cdot}6$ g per 1-unit increase; $P < 0{\cdot}001$) and an interaction with non-white ethnicity and birthweight was present. Ethnically stratified analyses demonstrates that among white Europeans, maternal consumption of a plant-based diet associated with lower birthweight ($\beta = -65{\cdot}9$ g per 1-unit increase; $P < 0{\cdot}001$), increased risk of small for gestational age (SGA; OR = 1·46; 95 %CI: 1·08–1·54; $P = 0{\cdot}005$), and reduced risk of large for gestational age (LGA; OR = 0·71; 95 %CI: 0·53–0·95; $P = 0{\cdot}02$). Among South Asians, maternal consumption of a plant-based diet associated with a higher birthweight ($\beta = +40{\cdot}5$ g per 1-unit increase; $P = 0{\cdot}01$), partially driven by cooked vegetable consumption.

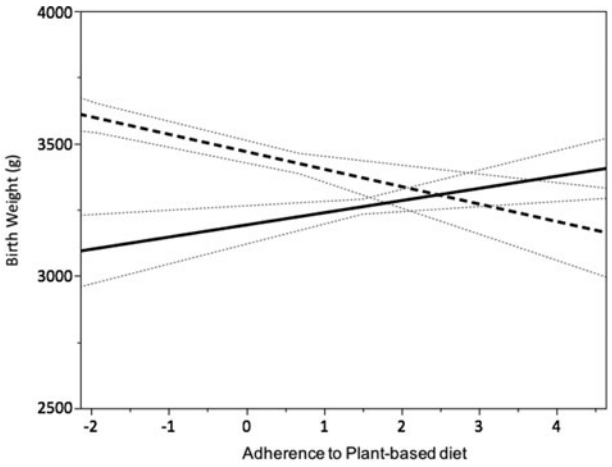

Fig. 1. Multivariable regression between maternal adherence to a plant-based diet (higher score reflects greater adherence) and birthweight in white Europeans (dashed line; n = 2,367) and South Asians (solid line; n = 884). Dotted line is the 95 % confidence interval.

In conclusion, maternal consumption of a plant-based diet during pregnancy is associated with birthweight. Among white Europeans, a plant-based diet is associated with lower birthweight, reduced odds of an infant born LGA, and increased odds of SGA, whereas among South Asians living in Canada, a plant-based diet is associated with increased birthweight.

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