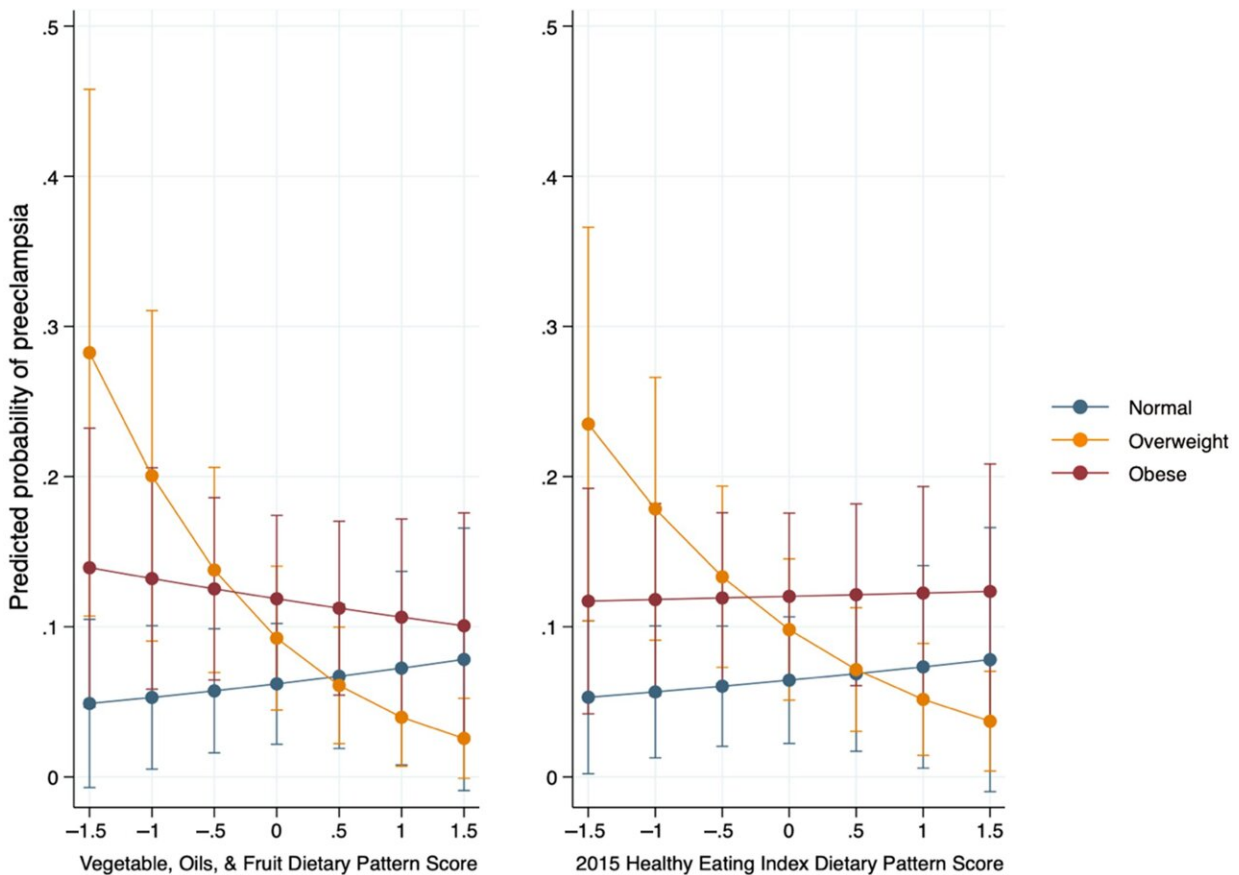


Diet linked to preeclampsia among low-income Hispanic women during pregnancy

February 27 2024



Predicted probability of preeclampsia by vegetables, oils, and fruit and HEI-2015 maternal dietary pattern scores during the third trimester of pregnancy, stratified by prepregnancy weight. Estimates are marginal predicted probabilities (95% CIs) of preeclampsia by 0.5-SD score intervals of the vegetables, oils, and fruit and HEI-2015 dietary patterns from multivariable logistic regression, indicating significant interaction terms between dietary patterns and prepregnancy body mass index categories (normal [blue];

overweight [yellow]; and obese [red]). Models were adjusted for maternal age and education, total household income, ethnicity and nativity, parity, late cohort entry, recruitment site, prepregnancy body mass index, and total energy intake. Data are from the MADRES study. Vegetables, oils, and fruit, $P_{\text{interaction}}=0.017$; HEI-2015, $P_{\text{interaction}}=0.017$. HEI-2015 indicates Healthy Eating Index 2015; and MADRES, Maternal And Developmental Risks from Environmental and Social stressors. Credit: *Journal of the American Heart Association* (2024). DOI: 10.1161/JAHA.123.029848

A study led by the Keck School of Medicine of USC has found that certain combinations of foods consumed during pregnancy may be linked to a higher likelihood of developing preeclampsia, a potentially life-threatening blood pressure condition that can have serious consequences for both mother and baby.

The study, which focuses on [low-income](#) Hispanic women in Los Angeles, suggests that different combinations of foods in a woman's [diet](#) during pregnancy have the potential to increase or reduce the likelihood of [preeclampsia](#) development and that interventions in diet during pregnancy may help reduce the risk of preeclampsia.

It is known that Hispanic women develop hypertension disorders during pregnancy more frequently than other groups of women, but little research has been done to date to understand this health disparity or find possible interventions. Preeclampsia, a type of hypertensive disorder that typically develops around the 20th week of pregnancy, can put the lives of the mother and fetus at risk for serious pregnancy complications.

Of the 451 Hispanic women involved in the study, 12% developed preeclampsia, twice the national average of 6%, noted Luis E. Maldonado, Ph.D., MPH, a postdoctoral scholar and research associate in the Department of Population and Public Health Sciences at the Keck

School of Medicine.

"These findings are alarming and underscore the research need to determine factors driving this health disparity and identify effective interventions to prevent it, said Maldonado, who is the lead author of the research, which was just published in the [Journal of the American Heart Association](#).

One type of diet appeared beneficial, another type detrimental

To determine if a connection existed between diet and the likelihood of developing high blood pressure disorders during pregnancy, the researchers used data collected by the Maternal and Developmental Risks from Environmental and Social Stressors study, or MADRES, an ongoing prospective pregnancy cohort of predominantly low-income Hispanic women in the Los Angeles area.

The subjects completed two questionnaires related to their consumption of food and beverages during the third trimester of their pregnancy. The team also collected information on high blood pressure disorders from the women's medical records.

Based on these diet interviews, the researchers identified two significant dietary patterns. In one, the most consumed foods were vegetables, oils, fruits, whole grains, and yogurt. In the second pattern, the women's diet consisted primarily of solid fats, refined grains, cheese, added sugar, and processed meat.

The study showed women who adhered the most to a diet high in solid fats, refined grains, and cheese were four times as likely to develop preeclampsia than women who adhered the least to this type of diet.

Meanwhile, women who adhered the most (versus women who adhered the least) to a diet primarily focused on vegetables, oils, and fruit were the least likely to develop preeclampsia during pregnancy.

Among the women who were overweight before their pregnancy, a known risk factor for developing preeclampsia, the effect of eating a diet focused on vegetables, oils, and fruit was stronger.

"The combination of foods in the overall diet during pregnancy appears to be related to preeclampsia, and this research gives important insight into which food combinations may confer protection or detriment," said Maldonado.

"Diet is a modifiable lifestyle factor which provides a potential intervention point during pregnancy. Our findings suggest low-income Hispanic women at greater risk for preeclampsia may benefit from dietary guidance during prenatal visits to improve intakes of certain combinations of foods such as vegetables, oils, and fruit."

Comparison to Healthy Eating Index

The researchers also used the dietary information collected to determine how well the women's diets scored on the Healthy Eating Index and to evaluate whether this metric could shed light on dietary habits that either heighten or diminish the likelihood of developing preeclampsia. The Healthy Eating Index is a measure of diet quality based on recommendations developed by the U.S. Department of Agriculture and the U.S. Department of Health and Human Services.

Although having a [higher score](#) on the Healthy Eating Index, which indicates a higher quality diet, was associated with fewer cases of preeclampsia, the relationship was not statistically significant except in the case of women who were overweight prior to becoming pregnant.

Maldonado noted that the Healthy Eating Index, which is based on dietary recommendations for the U.S. population as a whole, may not be the most suitable guideline for the prevention of preeclampsia or other hypertension disorders during [pregnancy](#) among low-income Hispanic pregnant women based on the study's findings.

Based on this data, however, Maldonado said the evidence suggests that a diet of vegetables, oils, and fruits appears to be the most beneficial diet among the diets evaluated in the study for reducing the likelihood of developing preeclampsia among low-income Hispanic women. "In general, further research is still needed to understand which combination of foods in the overall diet is most optimal for the prevention of preeclampsia."

More information: Luis E. Maldonado et al, Maternal Dietary Patterns During Pregnancy Are Linked to Hypertensive Disorders of Pregnancy Among a Predominantly Low-Income US Hispanic/Latina Pregnancy Cohort, *Journal of the American Heart Association* (2024). [DOI: 10.1161/JAHA.123.029848](https://doi.org/10.1161/JAHA.123.029848)

Provided by Keck School of Medicine of USC

Citation: Diet linked to preeclampsia among low-income Hispanic women during pregnancy (2024, February 27) retrieved 27 April 2024 from <https://medicalxpress.com/news/2024-02-diet-linked-preeclampsia-income-hispanic.html>

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