



# Periconceptional diet and the risk of gestational diabetes in south Indian women: findings from the BANGLES Gestational diabetes LiFEstyle Study (BANGLES)



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## Abstract

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**Background** Gestational diabetes can predispose two generations—a mother and her child—to a higher risk of obesity and type 2 diabetes. Culture-specific strategies to prevent gestational diabetes are required. BANGLES investigated the associations between women's periconceptional diet and gestational diabetes risk.

**Methods** BANGLES was a prospective observational study (n=785), in which women of various socioeconomic status were recruited at 5-16 weeks' gestation in Bangalore, India. Periconceptional diet was recalled at recruitment, using a validated 224-item food frequency questionnaire, that was reduced to 21 food groups for the food group-gestational diabetes analysis, and 68 food groups for the principal component analysis for a diet pattern-gestational diabetes analysis. Diet-gestational diabetes associations were examined using multivariate logistic regression, adjusting for a priori confounders determined from the literature. Gestational diabetes was assessed by a 75 g oral glucose tolerance test at 24–28 weeks' gestation, applying 2013 WHO criteria.

**Findings** Women who consumed whole-grain cereals (adjusted odds ratio [OR] 0.58, 95% CI 0.34–0.97, p=0.03); had moderate egg consumption (>1–3 times per week) compared with less than once per week (adjusted OR 0.54, 95% CI 0.34–0.86, p=0.01); and a higher weekly intake of pulses and legumes (adjusted OR 0.81, 95% CI 0.66–0.98, p=0.03), nuts and seeds (adjusted OR 0.77, 95% CI 0.63–0.94, p=0.01), and fried and fast food (adjusted OR 0.72, 95% CI 0.59–0.89, p=0.002) had a lower gestational diabetes. None of these associations was significant after correction for multiple testing. A high-diversity, urban diet pattern characterised by diverse home-cooked and processed foods and associated with older, affluent, educated, urban women was associated with a lower risk (adjusted OR 0.80, 95% CI 0.64–0.99, p=0.04). BMI was the strongest risk factor for gestational diabetes and possibly mediated the diet pattern-gestational diabetes associations.

**Interpretation** The same food groups that were associated with a lower gestational diabetes risk were components of the high-diversity, urban diet pattern. One healthy diet pattern might not be relevant to India. Findings support global recommendations to encourage women to attain a healthy pre-pregnancy BMI, increase diet diversity to prevent gestational diabetes, and have policies to increase food affordability.

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### Contributors

CHDF, AM, SHK, KK, and GVK designed the study. AM led the data collection, with the help of UT, NA, PP, and PK. AM analysed the data with support. AM, CHDF, and SHK interpreted the data and AM wrote the abstract.

### Declaration of interests

We declare no competing interests.

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