

- A partnership of public health researchers across six Universities in the North East and North Cumbria
- Working with policy makers and practice partners to improve health and wellbeing and tackle inequalities
- A founding member of the NIHR School for Public Health Research (SPHR)

# What impact does food insecurity have in pregnancy?

Food insecurity exists when someone struggles to afford or access enough food. It is on the rise in the UK but food insecurity during pregnancy is under researched worldwide. Researchers from Fuse, the Centre for Translational Research in Public Health, explored whether there are differences in pregnancy risks for women and babies when food insecurity is experienced during pregnancy.

Since the global financial crisis of 2008, food insecurity has become increasingly prevalent in high income countries, where it is usually caused by poverty, unemployment, and low income. More recently, the Covid-19 pandemic, rising fuel prices and cost-of-living crisis have all contributed to a sharp rise in UK food insecurity. Food insecurity is highest in North East England compared with the rest of the UK.

Women are more likely to experience food insecurity than men. They also have complex nutritional requirements, due to the menstrual cycle, pregnancy, and breastfeeding, which increases the potential for health impacts from food insecurity. Food insecurity impacts maternal weight, and is associated with increased risk of pregnancy complications, such as gestational diabetes - high blood sugar (glucose) that develops during pregnancy.

Previous work led by this Fuse research team has explored women's experiences of food insecurity and how it affects their nutritional health and wellbeing, identifying life course impacts for women and children and putting babies at a health disadvantage from before they are born. Inability to access sufficient food was embedded into women's everyday lives and embodied in detrimental physical, social, and mental nutritional health and wellbeing impacts.

Here, we present key findings and recommendations from multi-study research exploring whether there are differences in pregnancy risks for women and babies when food insecurity is experienced during pregnancy. We conducted

two reviews to pull together all of the available evidence on: (1) relationships between food insecurity, nutrition and maternal weight; (2) relationships between food insecurity and maternal and infant health outcomes.

Two additional reviews of the evidence will explore: (1) pregnant women's experiences of food insecurity; (2) relationships between food insecurity and breastfeeding.

Ongoing work will add to this evidence base by exploring the experiences, risks and support needs of women during pregnancy and in the postnatal period after birth, and their families across a diverse UK population in Gateshead, Coventry, Middlesbrough, Lambeth and Bradford.

## Key Findings

- Pregnant women experiencing food insecurity are up to four times more likely to have poor mental health - such as stress, anxiety, mood disorder and depression - than those who don't struggle to afford or access food.
- Pregnant women experiencing food insecurity are also at increased risk of obesity, developing diabetes during their pregnancy and developing dental problems.
- We identified mixed patterns relating to diet during pregnancy, with an indication that food insecurity was associated with low diet quality and vitamin E, and higher red and processed meat. There was also some evidence that pregnant women ate fewer vegetables and more snack food, depending on the severity of food insecurity.
- We also identified mixed patterns in the data for food insecurity and pre-eclampsia and hypertension (high blood pressure), as well how resilient or connected to their community food insecure pregnant women felt.
- The evidence base was limited for the health outcomes of infants.
- Most studies across both reviews were conducted in North America, highlighting a research gap across other contexts.

## Policy relevance and implications

- Women and families experiencing food insecurity are likely living with other causes of stress that could be contributing to food insecurity and pregnancy risks. Efforts to prevent and manage both maternal obesity and food insecurity must consider wider interlinked, structural barriers for families living in poverty.
- Urgent policy action should be taken to lessen the impacts of poverty upon families including:
  - i) uplift in the value of the Healthy Start scheme (a policy directly related to nutrition during pregnancy and early years);
  - ii) greater integrated care across multiple sectors for women during the pregnancy period;
  - iii) removal of the two-child benefit cap, continued expansion of childcare support and expansion of free school meals (based on our broader research program).
- Further research data is needed, particularly for the UK context, to make improvements in maternity and public health services to better support women experiencing food insecurity, particularly relating to a need for screening for food insecurity in conjunction with mental health, gestational diabetes and obesity.
- Evaluation of interventions targeting food insecurity during pregnancy should factor in the potential benefits of alleviating food insecurity in pregnancy on short and long-term health and wellbeing of women and children.

## REFERENCES

Nguyen, G., Bell, Z., Andreae, G., Scott, S., Sermin-Reed, L., Lake, A., & Heslehurst, N. (2024). Food insecurity during pregnancy in high-income countries, and maternal weight and diet: a systematic review and meta-analysis. *Obesity Reviews*, Article e13753.

Web: [doi.org/10.1111/obr.13753](https://doi.org/10.1111/obr.13753)

Bell, Z., Nguyen, G., Andreae, G., Scott, S., Sermin-Reed, L., Lake, A., & Heslehurst, N. (2024) Associations between food insecurity in high-income countries and pregnancy outcomes: a systematic review and meta-analysis. *Plos Medicine*.

Web: [journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1004450](https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1004450)

## FURTHER INFORMATION

Professor Nicola Heslehurst, Newcastle University

Email: [nicola.heslehurst@ncl.ac.uk](mailto:nicola.heslehurst@ncl.ac.uk)

X (formerly twitter) @NHeslehurst

LinkedIn: Nicola Heslehurst

Fuse, the Centre for Translational Research in Public Health, is a collaboration of six Universities in the North East and North Cumbria of Durham, Cumbria, Newcastle, Northumbria, Sunderland and Teesside.

Website: [fuse.ac.uk/research/briefs](https://fuse.ac.uk/research/briefs)

Blog: [fuseopenscienceblog.blogspot.co.uk](https://fuseopenscienceblog.blogspot.co.uk)

Youtube: [youtube.com/@fuseOnline](https://youtube.com/@fuseOnline)

X (formerly Twitter): @fuse\_online

Follow Fuse on LinkedIn

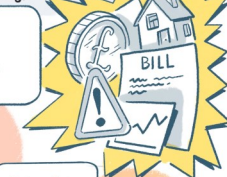
Email: [info@fuse.ac.uk](mailto:info@fuse.ac.uk)



## SUPPORT FOR PREGNANT WOMEN EXPERIENCING FOOD INSECURITY

More and more people, including pregnant women, are struggling with rising costs of living.

I can't afford to eat right!



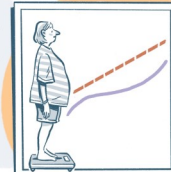
I don't feel I have much control over my income.

Our research looked at studies of pregnant women's experiences of living within tight food budgets to see if any patterns existed.

Women experiencing food insecurity are more likely to have poor quality diets heavy in processed meats and low in fruits and vegetables.



Pregnant women on tight food budgets are both more likely to have obesity and are less likely to put on enough weight during pregnancy.



Women experiencing food insecurity are more likely to experience high levels of mental health problems such as stress, depression and anxiety as well as dental problems and gestational diabetes.



Eighty percent of the fear when you first found out you're pregnant is, 'how am I going to do this? How am I going to afford this?'

The experience of pregnancy, in particular the prospect of having another mouth to feed, worsened the anxiety and stress of living on a tight food budget.

Some women expressed concerns over breastfeeding and how it may be affected by a poor diet.



Women on tight food budgets relied on support from others, in particular family and friends, to get by.



More integrated support is needed for pregnant women on tight budgets, to both signpost what help is available, and to remove the stigma of struggling to make ends meet.



The Centre for Translational Research in Public Health

Infographic co-designed with experts by experience during an engagement workshop in Newcastle Upon Tyne, North East England. Funded by Tilly Hale a Newcastle University Faculty Medical Sciences Engagement fund.