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# Food insecurity, food behaviours, mental wellbeing and diet quality: a nationally representative cross-sectional investigation during the UK cost of living crisis

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In the 12-month period leading up to March 2023, inflation in the UK increased by 8.9%<sup>(1)</sup>. Notably, the annual inflation rate for food and non-alcoholic beverages reached a peak of 19.2% in March 2023, marking a 45-year high<sup>(1)</sup>. Concurrently, research conducted between October 2022 and January 2023, revealed that 25% of adult respondents were classified as food insecure<sup>(2)</sup>. Food insecurity disproportionately affects young families, ethnic minorities, and individuals with disabilities, and correlates with poorer mental health, higher rates of obesity, and lower dietary quality. However, improving skills in cooking, meal planning, and budget shopping may alleviate some of the adverse health consequences associated with food insecurity. This primary research aimed to investigate the relationships between food insecurity, mental wellbeing, dietary quality, and food behaviours among a nationally representative sample of UK adults and was pre-registered (<https://doi.org/10.17605/OSF.IO/ZFMHD>).

A nationally representative cross-sectional survey was conducted in April 2023. Participants were recruited using a market research company (Dynata, UK) and quota-controlled sampling ( $\pm 5\%$ ) for age, gender, region and socioeconomic status. Data on food insecurity, mental wellbeing, diet quality and food behaviours, were collected, using validated measures where available. Ethical approval was received from King's College London (Ref: LRS/DP-22/23-35412). Data analysis consisted of chi-square tests of homogeneity, Kruskal-Wallis H tests and hierarchical multiple regression modelling with adjustment of relevant covariates, using SPSS Statistics v29.0.2. The significance threshold was set at  $p < 0.05$ .

1493 UK adults participated. Within the sample, 49.9% were male, mean age was 44.7 years (SD 16.3), 35.9% were classified into groups of either low (22.2%) or very low (13.7%) food security<sup>(3)</sup>. Analyses revealed significantly higher proportions of females, individuals with lower income, and those of non-white ethnicity in the low or very low food security groups compared to groups with higher levels of food security ( $p < 0.05$ ). Participants in the low or very low food security groups exhibited lower mental wellbeing scores and consumed fewer fruits and vegetables per day compared to those with higher food security ( $p < 0.05$ ). Hierarchical regression models explained 28.5% of the variance in mental wellbeing scores and 16.4% in daily fruit and vegetable intake. Notably, variables related to food behaviour, such as food engagement and cooking skills confidence, significantly added to the variance explained by the models ( $p < 0.001$ ), even after controlling for factors such as food insecurity score and income, respectively.

This study reveals the substantial prevalence of food insecurity among UK adults, whilst also highlighting its associations with mental wellbeing and dietary quality, particularly among higher risk groups. The findings emphasise the urgent need for targeted interventions. Implementing programs focused on enhancing cooking skills and wider food behaviours could serve to mitigate some of the adverse health consequences associated with food insecurity, leading to improvements in overall wellbeing.

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## References

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\*Equal contributions