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UK food insecurity in five-a-day fruit/vegetable consumption and cancer risk

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The *Lancet Public Health*¹ raised the concern that people from low socioeconomic status groups are more likely to develop cancer, in part because of lower consumption of fruits and vegetables, which increases cancer risk. “Socioeconomic status” is a sociological label which refers to someone’s occupation as a way of defining their income level. I believe that little has been done by the UK government to address the aspect of food insecurity in the UK connected with fruits and vegetables. My report presents an example of research showing that:

(A) people on low incomes are less likely to consume five portions of fruits/vegetables each day, and

(B) people who do not consume enough portions of fruits/vegetables each day are more likely to develop cancer.

Therefore, there is an urgent public health need for the UK government to tackle that type of food insecurity not just to achieve the goal of improving nutrition, but also to tackle the knock-on effects of food insecurity on cancer risk and other health outcomes.

Food insecurity and five-a-day

Improve affordability of fruits/vegetables in the UK: The public is often urged by health professionals and the media to eat at least five portions of fruits and vegetables every day, colloquially called “five-a-day.” However, there is food insecurity in the UK because many people cannot afford to eat that way. Research shows that the poorest 20% of people in the UK would need to spend half their disposable income on groceries in order to meet healthy eating guidelines.² Therefore, although public health campaigns quite rightly promote eating of “five-a-day” portions of fruits and vegetables, many people cannot afford to eat that way. The government should investigate the way that farmers, supermarkets and other people in the food supply chain can improve affordability.

Why is tackling that type of food insecurity in the UK important? It has a knock-on effect on population health, and I will illustrate that by giving you an example concerning cancer risk. I conducted an analysis of a dataset comprising of responses from 5,667 people in the UK in a study conducted by Brain et al.³ I found that the data showed that people from lower income households were significantly less likely to eat five-a-day of fruits and/or vegetables in the baseline week ($\beta=0.33$, $P<0.001$). The “baseline” in a scientific study refers to the starting point of research, from which further comparisons are made.

Of those people who did eat five-a-day, I found from my analysis that 64.97% of people were from households with workers in managerial jobs such as chief

executives, surgeons, bank managers or teachers, and supervisory jobs. Only 8.38% of people who eat five-a-day of fruits and vegetables had no formal educational qualifications compared to 71.82% who had a university degree.

That shows that majority of people who eat enough fruits and vegetables each day work in relatively high-paying jobs, and tend to be more well educated. That is, in large part, because of evidence showing that they are in a position to afford to.² My analysis found that six months after baseline, 88.89% of people who developed cancer did not consume five-a-day of fruits and/or vegetables in the baseline week. The causes of cancer are complex and include genetics as well as other aspects of lifestyle (e.g., smoking) but such evidence shows that fruits/vegetables are among the important contributory factors.

Food insecurity and population health: Higher cancer risk is one example of the evidence available, and the knock-on effects of food insecurity also include other health outcomes such as cardiovascular diseases. It adds to other evidence about the link between low socioeconomic status and other types of illnesses or medical conditions, including high risks of hospitalisation and death.⁴

What you can do to help the public

Your inquiry can help people on low incomes in the UK access five-a-day of fruits and vegetables. You can help the government go beyond simplistic five-a-day campaigns by helping the public access nutrient-dense fruits and vegetables through new laws and reforms within the food-supply chain. I ask that you recommend:

1. **Stoppages of high-profit making:** You should recommend new legislation which will stop supermarkets from selling fruits and vegetables with high profit margins with a cap of x%.

2. **Incentivise UK farmers:** You should make recommendations which encourage farmers to cultivate and supply nutritious fruits and vegetables which are affordable to customers. Help UK farmers compete with imports in price and variety. It is concerning that, according to DEFRA, the UK's self-sufficiency in vegetables is only 53%.⁵ Consider ways of addressing wastage risks or fears among farmers, such as by encouraging cultivation of crops such as beans, lentils and other legumes which can be stored for very long periods once dry, and more investment in the supply of frozen fruits and vegetables.

3. **Understand levels of food insecurity:** I recommend your inquiry acknowledges that the issue is not just one of affordability of five-a-day portions of fruits and vegetables, but is also one of affordability of those types which are nutrient-dense. Your inquiry can help farmers, and the public, learn about differences in the nutritional profiles of different types of fruits and vegetables. For example, apples may be relatively cheap in the UK but are ranked as having some of the least diverse set of nutrients⁶ compared to fruits like blueberries or kiwi fruits which have richer nutrient profiles. Therefore, consider not just what types of fruits and vegetables are sold, but the affordability of types which are high in nutrients.

5. **Make use of employers as food suppliers:** Workers in low-paid jobs often work in manual jobs such as in factories/manufacturing, where employers provide on-site canteens. I recommend legislation which compels employers with on-site

canteens to ensure that any meal sold or provided must contribute at least three full portions of fruits/vegetables.

Without your intervention, there is the strong risk that food insecurity concerning fruits and vegetables in the UK will continue among people on low incomes, with knock-on effects on higher cancer risk and other negative health outcomes. The issue is a public health emergency which requires urgent action.

References

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