



Is calorie labelling on menus the solution to obesity?

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From April 2022, as part of the UK government's new obesity strategy, it is now compulsory for all larger restaurant and cafes in the UK to include calorie labelling on their menus. Is this legislation, however, likely to be effective in reducing our caloric intake, thereby tackling obesity?

In July 2020, as parts of the world began emerging, blinking into the light, from nearly 4 months of lockdown as a result of the COVID-19 pandemic, the government in the UK published a new obesity policy paper¹. This was not the first obesity strategy to have been let loose on the UK public, and it most certainly will not be the last. It was, however, probably the first to be inspired by a Prime Minister who ended up in intensive care because of an infection in the middle of a global pandemic. This brush with mortality appeared to be a 'road to Damascus' moment for Boris Johnson, who blamed his elevated body weight for the severity of his illness. Even at that early stage of the pandemic, it was clear that being infected with COVID-19 while living with obesity was linked with far worse health outcomes. There was therefore an urgency for the UK government to try and get a considerable number of people to lose weight, in order to mitigate the health impacts of the pandemic.

One of the headlines of the new obesity strategy was the requirement for all restaurants and cafes with over 250 employees to place calorie information on menus, with the threat of a £2,500 fine for non-compliance². There are some exemptions to the legislation, including food that is only on a menu for 30 days of the year or less and, interestingly, all alcohol drinks above 1.2% ABV. This calorie labelling law was approved by parliament in mid-2021, and it eventually came into effect in April 2022. It is unequivocal that the vast burden of non-communicable diseases faced by humankind today is diet-related, which includes obesity and its host of co-morbidities. While highlighted by COVID-19, the health risks associated with obesity of course pre-date the pandemic and will remain long after this current crisis. Thus, as a scientist studying the genetics of body weight, I am fully supportive of efforts to improve our diet, and in doing so help people who are carrying too much adipose tissue to lose weight. The question is, however, whether or not calorie labelling will be an effective solution.

Unlike mandatory nutrition labelling on pre-packaged foods, which has been enforced in many countries for the past few decades, calorie labelling on menus has,

until recently, only ever been encouraged, with some of the larger establishments displaying them on a voluntary basis. A review of the few studies ($n = 3$) that examined the effect of voluntary labelling indicated that it reduced energy purchased per meal by an average of 7.8%, although the authors acknowledged that the sample size of the studies was too small to make any definitive conclusions³.

In 2018, the USA, as part of President Obama's affordable care act, mandated nationwide menu calorie labelling for larger restaurant chains with more than 20 locations. This became a large natural experiment and an informative bellwether for the effectiveness of the policy. In one of the key studies that have emerged, Petimar and colleagues analysed sales data from a franchise of 104 fast-food restaurants in Louisiana, Mississippi and Texas (representing three large nationwide chains in the USA) to determine how nutrient purchases changed after nationwide implementation of labelling in May 2018. The data showed an immediate dip of calories per transaction, with a subsequent slow month on month rise. At the end of the year-long study, the average calorie content of meals was still 4.7% lower than what would be expected had labelling not occurred⁴. So the effect was positive, if small, and longer term follow-up will be required to see how long this decrease will last.

Other studies have explored whether calorie labelling resulted in restaurants altering the offerings on their menus. Grummon and colleagues examined the menus of 59 different restaurant chains and found that, while there were no changes in mean calorie content for continuously available items, items that were introduced after labelling had a mean calorie content 112 kcal lower than items introduced before labelling⁵. A study in the UK prior to mandatory labelling reported that items from restaurants with calorie information had 45% less fat and 60% less salt than items from restaurants without calorie information, although the data were cross-sectional, so the direction of causation could not be determined⁶.

So, based on the available data, it would not be unreasonable to expect calorie labelling in the UK to result in

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a similarly small reduction in calories per transaction, at least in the short-term. There are, however, three points to reflect on.

First, will this reduction in calories purchased be maintained in the longer term, once consumers get acclimated to seeing the numbers? The only way to answer this question is time, and with the USA 4 years ahead of the UK in this labelling experiment, we should get a clear steer soon.

Second, are calories the most appropriate nutritional information to be focussing on? Calories, of course, provide information about the amount of food, but are agnostic to its nutritional content. And while the amount of food being consumed does matter, far more important is what is being eaten. How much protein or fibre does a menu item contain? How about the sugar, salt and fat content? How about added sugars versus total sugar, or saturated fat versus polyunsaturated fat? Calories do not shed light on any of these measures. The evidence above suggesting that some establishments might be changing their menu to include items lower in fat and salt, in response to the labelling mandate, is cross-sectional and hence limiting. Thus, further studies will be required to properly assess if restaurants will reformulate food items on their menus in response.

Third, and most importantly, is calorie labelling (in fact is any nutritional labelling) reaching the sector of society that needs it most? In the UK, those in the bottom 20% of the socioeconomic strata (where the prevalence of obesity is 36%) are almost twice as likely to be living with obesity as those in the top 20% (where the prevalence of obesity is 20%)⁷. In fact, in a study of twins in the Gemini cohort (a population-based prospective cohort of twins born in England and Wales between March and December 2007), the heritability of BMI was demonstrated to be higher among those living in a lower socioeconomic and more obesogenic environment (86%), than in those in a higher socioeconomic and less obesogenic environment (39%)⁸. The difference between rich and poor is not genetic, but an accident of birth. What the study tells us is that if an individual is genetically susceptible to obesity, then being exposed to a less

healthy environment maximizes their genetic burden, while conversely, a healthier environment more than halves the risk. This experiment illustrates why there is the range for the heritability of BMI of 40–70%⁹.

Calorie labelling will, in all likelihood, have a small but measurable effect, at least in the short term, on the food purchasing habits of those of us in the ‘academic classes’ reading this piece. Most of us are privileged enough to be able to, should we wish, make those choices. Those who are underprivileged lack cash, time and, ultimately, choices. Underprivileged people are going to have to make the decisions they make to feed their families, regardless of the nutritional content of the food. The cold hard truth is that the risk of obesity in those from lower socioeconomic backgrounds is not going to be fixed with calorie labelling, but by making healthy food cheaper and more convenient, and by solving poverty.

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Competing interests

The author declares no competing interests.