Menu labelling: Is it informed choice if the information is incorrect?

Matt Capehorn
Clinical Manager, Rotherham Institute for Obesity, and Clinical Director, National Obesity Forum

Sophie Reale
Healthcare Specialist, Rotherham Institute for Obesity

Caroline Steele
Healthcare Specialist, Rotherham Institute for Obesity

A recent visit to one of my local Burger King outlets left me with bewilderment. It was before the time in the morning when the items served are changed from the breakfast menu to main menu. I was asked to purchase a regular cappuccino coffee and, whilst waiting to be served, and out of interest, I wondered how many calories would be in this. On the menu billboard above the cashier, it said that a regular cappuccino was 71 kcal and a large was 105 kcal. However, the tray menu said 308 kcal and 387 kcal, respectively! To make things more confusing, the "grab and go" menu range advertised a bacon butty with ketchup as 375 kcal, whereas the tray insert stated 218 kcal, and with a regular cappuccino it was 651 kcal, suggesting that a regular cappuccino suddenly became 276 kcal when purchased with a bacon roll. A third value for the same item! When I questioned this with two members of staff, one senior, they could not understand or explain it either. This led me to question whether menu labelling is accurate in our popular quick-service restaurants. After all, is it really informed choice if the information is incorrect? After discussion with colleagues at a multidisciplinary team meeting at the Rotherham Institute for Obesity (RIO), who were bemused and shocked in equal measure, we decided to find out.

Background

The evidence that we face an obesity epidemic is overwhelming, and the causes of this are numerous. The Foresight Report of 2007 showed over 100 factors involved in why we, as individuals or as a society, are getting bigger (Butland et al, 2007). Not surprisingly, food consumption plays a major role, but intimately linked with this are dietary habits, food production and food marketing. A logical suggestion put forward to try and positively influence food consumption and "nudge" it in a more healthy direction has been to provide more informed choice. This has resulted in more nutritional information being made available at the point of sale in typical fast food outlets than ever before. The UK population have arguably become time-sensitive shoppers, forsaking cooking skills and home-prepared meals for convenience foods, which require minimal time and physical effort (Buckley et al, 2007). However, on a daily basis, hundreds of food choices are made by the UK public that are spur-of-the-moment and without too much thought given to nutritional or caloric content, or to the alternatives that may be available (Grunert et al, 2010). This situation provides a difficult challenge for policy makers as they aim to drive consumers' attention towards the more healthy options and in order to prevent over-consumption.

Attention is thought to play a key role in the assimilation of stimuli values at the time of choice, which suggests that providing health cues could be used to improve decision making (Hare et al, 2011). Multiple studies have found people to make healthier choices in the presence of health cues.

In 2006, legislation was passed to ensure that all packaged foods in the UK had to provide nutritional content values in line with the traffic light labelling system (Sacks et al, 2009). The aim was to attract consumers' attention to the most health-relevant information in order to promote healthier choices and allow for informed decisions to be made. Studies have shown a positive relationship between nutritional label use and healthy consumption following the law's implementation (Campos et al, 2011). However, current labelling laws in the UK have no profound effect on food preference and consumption when dining out in fast food outlets. This is concerning given that the British population consume at least one in every six meals out of the home.

Linked with the Government's Responsibility Deal, 2009 saw 40 chain restaurants from 21

services agree voluntarily to provide nutritional information on menus, as a method of trying to steer consumers towards more healthy consumption when dining out, as eating regulation is one of the main factors that can positively influence weight management and health (Teixeira et al, 2011). Included in this sample were the popular American chain restaurants, which already had to provide accurate caloric values on their restaurant menus in the US, as part of the 2010 Patient Protection and Affordable Care Act (Pizam, 2011). Therefore, the accurate caloric values should have already been known and it was just a matter of placing them in view of the public eye.

However, based on observation, it appears that there may be discrepancies between values on menu boards, tray liners and the internet. This is likely to cause more consumer confusion than providing no information at all and, consequently, defeats the purpose of the intervention. Therefore, we aimed to identify whether popular high street fast food outlets in the UK were providing consistent nutritional values on their menu boards, tray liners and official websites. If they were not, we looked to identify where the discrepancies lay.

Method

Calorie information for each menu item at four of the largest and most popular quick-service restaurants – Burger King, Subway, KFC and McDonald's – were extracted from menu boards, tray liners and the official websites on 30 June 2015, with photographs and examples of nutritional information collected where available, from each restaurant in central Rotherham. All of this took place on the same day to control for changes to the menu.

In some restaurants, main billboard information was given inside and outside the restaurant, and information from either billboard used in statistical analysis. Some restaurants had additional menu and calorie information on the side wall at the point of sale, which was referred to as the "side menu". In cases where two calorie values were given for the same menu item, differences of 1.0 kcal or less were counted as being the same, but anything above this was counted as a discrepancy.

All data were input into a spreadsheet and imported to SPSS (IBM, Portsmouth). In SPSS, descriptive statistics were run, followed by repeated measures analysis of variance to identify any significant differences between the nutritional information presented on menu boards, tray liners and the official website of each fast food outlet. Significance was identified at $P<0.05$.

The results were tabulated and are included for each restaurant. The mean calorie difference and range (lower and upper bound referring to how far out the lowest and highest values were from the mean; e.g. a 50 kcal discrepancy) are given, and analysis made to establish whether these were statistically significant.

Results

Number of items on menus displaying kcal information

In all restaurants, only the tray displayed calorie information for all the menu items (*Table 1*). However, due to the discrepancies below, it is questionable whether this information is in fact correct.

Discrepancies in menu labelling

Labelling discrepancies are detailed in *Table 2*.

Burger King

Burger King had four menus that displayed the caloric values of the items sold. The tray liner was the only menu to contain all menu items (n=108). The internet (42.6% of items missing), billboard (58.3% missing) and side menu (37.0% missing) had incomplete information. Not only this, but there also appeared to be a discrepancy

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Table 1. Number of items on menus displaying caloric information.

	Burger King	Subway	KFC	McDonald's
Internet	62	20	34	90
Tray	108	74	75	127
Inside billboard	45	24	32	42
Outside billboard	0	0	31	98
Either billboard	45	24	32	106
Side menu	68	55	13	0

Summary

1. The authors compared calorie information for each menu item between billboards, side menus, tray liners and official websites from each Burger King, Subway, KFC and McDonald's restaurant in central Rotherham.
2. In all four chains, the tray liners were the only complete source of calorie information. Furthermore, different menus reported different calorie counts for the same items of food and drink, with discrepancies of up to 69 kcal observed.
3. While statistical analysis revealed that the differences were not significant, this may have been a result of the small sample size; nonetheless, up to 85.5% of items had different caloric values on different menus.
4. Inconsistent nutritional information like this makes it difficult for customers to make informed choices about healthier options. Providing accurate and consistent information is a simple measure the food industry can make to help tackle the obesity epidemic.

Table 2. Discrepancies in calorie labelling between different menu sources.

	Number of values the same	Number of values that were different	kcal mean difference (standard error)	Lower bound	Upper bound
Burger King					
Internet vs. tray	9 (14.5%)	53 (85.5%)	38.67 (117.51)	–67.79	9.56
Internet vs. billboard	13 (32.5%)	27 (67.5%)	2.98 (10.75)	–24.71	18.76
Internet vs. side menu	14 (27.5%)	37 (72.5%)	32.81 (133.03)	–69.13	3.50
Tray vs. billboard	39 (86.7%)	6 (13.3%)	14.50 (10.08)	–5.81	34.82
Tray vs. side menu	60 (88.2%)	8 (11.8%)	8.24 (6.06)	–3.86	20.33
Billboard vs. side menu	30 (100%)	0	0	0	0
Subway					
Internet vs. tray	11 (55.0%)	9 (45.0%)	0.80 (1.84)	–4.66	3.06
Internet vs. billboard	10 (52.6%)	9 (47.4%)	0.68 (1.89)	–4.66	3.29
Internet vs. side menu	11 (73.3%)	4 (26.7%)	1.53 (7.07)	–2.38	5.44
Tray vs. billboard	23 (95.8%)	1 (4.2%)	0.13 (0.17)	–0.23	0.48
Tray vs. side menu	34 (61.8%)	21 (38.2%)	1.51 (1.83)	–2.16	5.18
Billboard vs. side menu	14 (73.7%)	5 (26.3%)	1.37 (1.14)	–1.02	3.76
KFC					
Internet vs. tray	26 (76.5%)	8 (23.5%)	3.38 (9.69)	–16.34	23.10
Internet vs. billboard	25 (86.2%)	4 (13.8%)	1.55 (1.17)	–3.94	0.84
Internet vs. side menu	1 (100%)	0	0	0	0
Tray vs. billboard	26 (81.3%)	6 (18.7%)	7.97 (9.90)	–28.16	12.22
Tray vs. side menu	13 (100%)	0	0	0	0
Billboard vs. side menu	0	0	0	0	
McDonald's					
Internet vs. tray	90 (100%)	0	0	0	0
Internet vs. billboard	90 (100%)	0	0	0	0
Tray vs. billboard	106 (100%)	0	0	0	0

in the caloric values that were on display, with up to 85.5% of the menu showing different values. The largest number of differences was observed between the internet and the tray insert (n=53). The largest mean calorie discrepancy (69.1 kcal) was observed when comparing the information from the internet with that on the side menu. The tray predominantly displayed higher caloric values than the billboard and side menu; however, the difference between these values was not statistically significant ($F_{1,48}$=1.91; P>0.05).

Subway

Subway had four menus that displayed the caloric values of the items sold. The tray liner was the only menu to contain all menu items (n=74). The internet (73.0% of items missing), billboard (67.6% missing) and side menu (25.7% missing)

had incomplete information. In addition, there appeared to be a discrepancy in the caloric values on display, with up to 47.4% of the menu showing different values. The largest number of differences was observed between the tray insert and the side menu (n=21). The largest mean calorie discrepancy (5.4 kcal) was observed when comparing the information from the internet with that on the side menu; however, the difference between these values was not statistically significant ($F_{1,18}$=0.64; P>0.05).

KFC

KFC had four menus that displayed the caloric values of the items that they sold. The tray liner was the only menu to display all menu items (n=75). The internet (54.7% of items missing), billboard (57.3% missing) and side menu (82.7% missing) had incomplete information. In addition, there appeared to be a discrepancy in caloric values, with up to 23.5% of the menus showing different values. The largest number of differences was observed between the internet and the tray insert (n=8). The largest mean calorie discrepancy (28.2 kcal) was observed when comparing the information between the internet and that on the tray insert; however, the difference between these values was statistically insignificant ($F_{1,27}$=0.08; P>0.05).

McDonald's

McDonalds had three menus that displayed the calorific values of the items that they sold. The tray liner was the only menu to contain all menu items (n=127). The internet (29.1% of items missing) and billboard (16.5% missing) had incomplete information. However, there were no discrepancies in the calorie information across their range of menus.

Discussion and conclusion

Only tray liners provided nutritional information on all products that the restaurants provided calorie information for. Statistical analysis revealed that these differences were not significant, possibly because of the small sample size; however, up to 85.5% of menu items displayed different caloric values. This raises the question whether any of these values are actually correct, and certainly leaves the consumer without the ability to make an informed choice.

In a primary care-based weight management clinic like RIO, part of our intervention is to encourage people to read nutritional information on labels. Are we wasting our time, or even doing our patients no good whatsoever, if the information provided by our major fast food restaurants is incorrect? We need to work in partnership with the food industry in order to tackle the obesity epidemic, and this is an example of how they can help, by providing accurate and consistent information. While McDonald's can be congratulated for having no discrepancies in the calorie information displayed on their menus, in general the industry must do better. ■

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