Television advertising and branding. Effects on eating behaviour and food preferences in children

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ABSTRACT

Television provides one of the first, and most intimate, experiences of commercial food promotion. Therefore, unsurprisingly, the effects of television advertising on children’s brand preferences are well established. However, its effect on actual food intake and the food choices in children of various weight statuses has only recently been characterised. Despite regulation, children in the UK are exposed to considerable numbers of food adverts on television. These are predominantly for foods high in fat, salt and sugar (HFSS), which are marketed to children using promotional characters and themes of fun. Such adverts have been shown to cause significant increases in intake, particularly in overweight and obese children, and enhanced preference for high carbohydrate and high fat foods in children who consume the greatest amounts of televisual media.

Keywords:
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Introduction

Television influences the attitudes, behaviours, and values of viewers, particularly children (Byrd-Bredbenner, 2002; Nash, Pine, & Messer, 2009). Consequently, television viewing and the resulting exposure to food advertising (Hamilton-Ekeke & Thomas, 2007; St-Onge, Keller, & Heymsfield, 2003) and branding (Jaeger, 2006; Just & Payne, 2009) have been proposed as important factors in influencing food choice decisions and therefore determining dietary health and obesity risk. Children are major targets for marketing by the food industry, given that they have both independent spending power (current and future) and a significant influence over family spending. The influence of television, television advertising and branding on food preference and eating behaviour in children is the focus of this review.

Links between television viewing and obesity

It has been argued that greater than 60% of overweight incidence amongst children and adolescents in the US could be attributed to television viewing (Gortmaker et al., 1996). Importantly, it has even been shown that television viewing in childhood can independently predict increased adult body mass index, suggesting a causal link (Viner & Cole, 2005).

Crucially, the balance of literature suggests that the association between television viewing and obesity remains significant even when potential confounding variables such as socioeconomic...
status, familial tendency to overweight (Hancox & Poulton, 2006) and, critically, levels of physical activity (Eisenmann, Bartee, Smith, Welk, & Fu, 2008; Epstein et al., 2008) are taken into account. Therefore, it is not simply the case that television viewing is linked to obesity because it is a sedentary activity, rather the association appears to be due to the effects of television viewing on energy intake.

Television viewing and children's food intake

The immediate impact of TV on food choice and consumption

Numerous studies have demonstrated that energy intake increases during television viewing. Specifically, Crespo et al. (2001) found that girls who watched 5 or more hours of television a day consumed an extra 175 kcal per day on average compared to those watching 1 h or less of television daily. Wiecha et al. (2006) found an even bigger increase in intake to be associated with each additional hour of television viewing per day. It is clear that the cumulative effect of even a small daily increase in kcal intake could contribute to a positive energy balance.

Typically, increases in caloric intake associated with television viewing are chiefly due to increases in the consumption of foods that are both energy dense and low in nutrients (Davison, Marshall, & Birch, 2006) (i.e. HFSS), so television viewing is associated with poor overall diet quality. The amount of time spent viewing television has been found to be predictive of unhealthy conceptions about food and poor eating habits generally (Signorielli & Lears, 2006) (i.e. HFSS), so television viewing is associated with poor overall diet quality. The amount of time spent viewing television has been found to be predictive of unhealthy conceptions about food and poor eating habits generally (Signorielli & Lears, 2006). Several studies have found that television viewing was inversely associated with intake of fruit and vegetables (Boynton-Jarrett et al., 2003; Coon, Goldberg, Rogers, & Tucker, 2001) or with individuals deriving more of their daily energy intake from HFSS foods (Coon et al., 2001; Miller, Taveras, Rifas-Shiman, & Gillman, 2008).

Furthermore, eating whilst watching television (whether eating snacks in front of the television or having television viewing as part of the meal time routine) has been shown to affect food choice and caloric intake. Marquis, Filion, and Dagenais (2005) showed that eating in front of the television was positively associated with children's general consumption of an array of foods including French fries, salty snacks, ice cream, confectionery, pastries, sweetened cereals, fruit beverages and soft drinks. It has been suggested that children in particular consume a substantial proportion of their daily energy whilst watching television, 20% and 25% for weekdays and weekend days respectively (Matheson, Killen, Wang, Varady, & Robinson, 2004), therefore television viewing could have a significant impact on both the types of food items selected and the overall level of consumption.

The longer term impact of TV on obesity

Food advertising has often been proposed as a candidate for the association between television viewing and adiposity. In support of this, Lobstein and Dibb (2005) found a significant, positive correlation between levels of overweight in nine countries (seven EU countries, the US and Australia) and the number of television adverts for sweet or fatty foods broadcast in a 20 h period. Furthermore, a recent study by Zimmerman & Bell (2010) showed that there was a significant association between commercial viewing in 1997 and BMI z-score in 2002 for children aged 0–6 years. This association was robust even when exercise and eating while viewing were taken into account, which supports the assertion that the link between TV viewing and obesity is not due to the former being a sedentary activity, rather it indicates that it is the advertising on television that is associated with obesity.

Television food advertising and branding

Nature and extent of food advertising to children on television

Despite technological innovations such as the internet, television remains one of the most powerful sources of communication we have (Abbatangelo-Gray, Byrd-Bredbenner, & Austin, 2008). Perhaps unsurprisingly therefore, across the globe, television is still the primary medium used for advertising food and drink products (Eagle, Bulmer, De Bruin, & Kitchen, 2004; Henderson & Kelly, 2005; Story & French, 2004). In the US, $1 billion is spent annually on youth-oriented media advertising, particularly on television (Story & French, 2004).

National policies and practices regarding the control of food advertising to children on television vary between countries, even within the EU (IASO, 2010). Statutory legislation was introduced in the UK in 2007 restricting the advertising of HFSS foods in and around programming specifically made for or of particular appeal to children under 16 years of age (Ofcom, 2007). Regulations regarding the content of food advertising (regardless of when it is scheduled) were also applied at this time, prohibiting the use of licensed characters, celebrities, promotional offers and health claims in advertisements for HFSS products targeted at pre-school or primary school children. However, despite these regulations, a comprehensive study of over 5000 h of television on the channels most popular with young people showed that children in the UK are still exposed to more advertising for unhealthy than healthy foods, even at peak children's viewing times (Boyland, Harrold, Kirkham, & Halford, 2011b) (see Fig. 1).

Fig. 1. The proportion of adverts that were for food, and the proportion of food adverts specifically that were for core, non-core and miscellaneous food items between peak and non-peak children's viewing times (from 2008 data reported in Boyland et al., 2011b).

Criticisms of the regulations have focused particularly on the way in which programmes 'of particular appeal to children' are identified, namely the use of audience indexing. This method applies advertising restrictions if programmes have an audience in which the proportion of viewers under 16 years is at least 20% higher than the proportion of children in this age group in the general population. This means that the food advertising restrictions do not apply to programmes which also have a high adult audience, this describes most family programming and particularly primetime entertainment shows which frequently attract child audiences of over 1 million (a greater child audience than typically watches child-specific programming) (Which?, 2006; Which?, 2008). In addition, there are concerns over the lack of restrictions regarding (1) the use of brand equity characters (such as Tony the Tiger promoting Kellogg's Frosties) in HFSS food advertising as they are thought to influence children's food choices (see discussion below) and (2) brand advertising, where no food products are
shown but the brand logo and message (with strong associations to the HFSS foods produced under that brand name) can still be repeatedly reinforced.

Of the ten most frequently advertised food items, six were unhealthy items such as fast food, high sugar/low fibre breakfast cereals, chocolate/confectionery and snack foods (Boylan et al., 2011b).

Similarly, numerous studies from around the globe have shown that typically the majority of ads broadcast are for unhealthy, HFSS products (Batada, Seitz, Wootan, & Story, 2008; Batrinou & Kanellou, 2009; Chapman, Nicholas, Banovic, & Supramaniam, 2006; Jenkin, Wilson, & Hermanson, 2009; Kelly et al., 2010). Overall, it is clear that the foods advertised reflect a dietary pattern that would be associated with increased risk of obesity and are not in line with recommended nutritional guidelines (WHO, 2003).

The way in which these foods are advertised is also worthy of note. A recent study in the British Journal of Nutrition (Adams, Tyrrell, & White, 2011) found that in approximately a third of food advertisements, an ‘incidental food’ appeared alongside the item that was the focal point of the advertisement (the ‘primary food’). The most common food group represented among primary foods was ‘foods and drinks high in fat and/or sugar’ (41%, e.g. chocolate, cakes, full-sugar carbonated soft drinks). Among incidental foods the most frequently represented food group was ‘fruit and vegetables’, and these foods were significantly less likely to be high in fat and/or sugar. So where a wider food context was present in the advert, this context tended to be healthier than the branded foods that were the focus of the advert. The authors concluded that this may be perceived as reinforcing the idea of a balanced diet, or may add an unjustified aura of ‘healthiness’ to the advertised food (Adams et al., 2011).

Advertisers also use particular persuasive techniques to appeal to children and young people (such as the use of appeals, promotional characters, celebrity endorsement and giveaways) (Committee on Communications, 2006), and such techniques do affect the popularity of the advert with children (Nash et al., 2009). Again, despite regulatory control in the UK, the use of promotional characters and other techniques known to appeal to children is widespread amongst food advertising on popular commercial channels (Boylan, Harrold, Kirkham, & Halford, 2012). Children naturally focus their attention on techniques such as animation and visual effects, and emotional appeals do distract children from other aspects of adverts for example nutritional disclaimers or product information (Wicks, Warren, Fosu, & Wicks, 2009).

Branding is critical to product choice, particularly for children and young people; therefore the majority of child-oriented food advertisements take a branding approach (Connor, 2006). Television advertising is thought to be very effective at building strong product information (Wicks, Warren, Fosu, & Wicks, 2009).

Children are critical targets for marketing and branding activity; they have independent spending power but also exert considerable influence over family purchases. Food and drink purchases are the categories over which children have particular influence (Søndergaard & Edelenbos, 2007). In addition, children are also seen as “teenage and adult shoppers of the future” so that any brand loyalty that is fostered at a young age may reward the food company with a lifetime of sales, potentially worth $100,000 to a retailer (Escalante de Cruz, Phillips, & Saunders, 2004).

There are numerous examples of food branding activity used to appeal to children. Brand licensing is prevalent in children’s programming, and the release of each new movie aimed at young people is typically accompanied by a raft of product tie-ins. Following the release of the SpongeBob Squarepants™ movie in 2004, the character name was associated with and used to promote numerous food products, and concurrently Burger King offered SpongeBob toys and watches at its restaurants (Linn & Golin, 2006).

Numerous brands use characters and celebrities in their promotions and on product packaging, and their presence is believed to assist with generating brand identity and facilitating a brand-consumer relationship (Lawrence, 2003). This can be in the form of brand licensed characters (such as SpongeBob Squarepants™ as mentioned above); or brand equity characters which are created for the sole purpose of promoting a product or brand (Garretson & Niedrich, 2004). Many of these associations have been built up over generations, for example Tony the Tiger has been the character for Kéllogg’s Frostedies since 1951 (Lawrence, 2003). Celebrity endorsements are also used in order to link a brand to a certain age group or fan base (IOM, 2005). In the UK, former International footballer Gary Liniker, now a TV sports presenter, has been endorsing the promotional campaign for Walkers Crisps since 1995, during which time the brand won an award for being the ‘consumer’s favourite in the food and drink category’ (British Broadcasting Association, 2004).

Product placement in television programming, such as the appearance of Coca-Cola in each episode of American Idol, is one of many contentious branding activities but is effective in ensuring that children are exposed to brands in as many situations as possible. There are also several other branding avenues used to reach child and adolescent audiences such as internet advergaming (Pempek & Calvert, 2009), viral marketing, product, programme and event sponsorship, mobile phone advertising, advertising within schools and point-of-sale marketing (Lindstrom, 2004) so that both the frequency and intensity of children’s exposure to branding messages is unprecedented (Linn, 2004).

In response to such ubiquitous branding activity, brand loyalty can be established by two or three years of age. Before they are even able to read, some children have already begun to make requests specifically for named branded products (Escalante de Cruz et al., 2004). It has been suggested that exposure to a brand early in childhood in particular is critical for the creation of emotional attachments and the solidification of the relationship with that brand (LaTour, LaTour, & Zinkhan, 2010). Brand relationships formed by children early in life are thought to be more imbedded than those formed later (Ji, 2002). The brand of an item has been stated as one of six key factors that drive children’s purchasing decisions, alongside fun, taste, peer-pressure, status and packaging (BHF, 2008).

Findings from our own research have indicated that following food advert exposure, correct recall of adverts is significantly related to the subsequent number of food items selected (Halford et al., 2008a). Furthermore, it was found that obese children correctly recognised a greater number of food adverts than normal weight children, and this recognition was positively correlated with the amount of food consumed subsequently (Halford, Gillespie, Brown, Pontin, & Dovey, 2004). Additionally, recognition of food adverts was related to BMI in 5–7 year old children (Halford, Boyland, Hughes, Oliveira, & Dovey, 2007) which is supportive of other studies linking brand recognition and weight status (Arredondo, Castaneda, Elder, Slynem, & Dozier, 2009). The term ‘recognition’ in this context, as distinct from recall, refers to a child’s ability to select the correct option from a number of visual cues provided.

Celebrity endorsements are effective at increasing children’s preferences for the product being promoted (Erdogan, 1999; Ross et al., 1984). Furthermore, the association of known and liked brand characters with a food has been shown to influence the likelihood of children agreeing to eat that food, and increased
willingness towards tasting a novel healthy food (Kotler, 2007). In a recent study, children were significantly more likely to prefer the taste of and choose foods that featured popular cartoon characters (such as Shrek and Dora the Explorer) compared to the same foods without the characters demonstrating for the first time, the effect of licensed characters on taste preference and product choice (Roberto, Baik, Harris, & Brownell, 2010).

Food manufacturers spend substantial sums of money on advertising campaigns to promote sales (Henderson & Kelly, 2005) in the belief that exposure to advertising affects behaviour. There is considerable evidence that food preferences and eating behaviour are modified by food advert exposure and branding.

**Advertising impacts on children’s food preferences**

The term ‘food preference’ in this context refers to ‘stated preferences’, i.e. children’s responses when asked about their “food likes” after stimuli exposure, whereas food intake (discussed in the next section) reflects “revealed preferences”, i.e. what is observed as a result of real decisions on food.

Using a food preference checklist that was first described by Blundell and Rogers (1980), Halford et al. (2008a) demonstrated that television food advertisement exposure can produce an obesogenic food preference response in normal weight children that is typically found in overweight and obese children. Children who habitually watch more television are also more susceptible to the effects of television food advertising, showing an enhanced preference (particularly for branded foods) following food advert exposure compared to children who watch less television (Boyland et al., 2011a) (see Fig. 2).

Furthermore, Borzekowski & Robinson’s (2001) much cited randomized, controlled trial showed that children who saw a videotape with embedded food commercials were significantly more likely to select the advertised product than children who had not seen the commercials. Robinson, Borzekowski, Matheson, & Kraemer 2007 also reported that children preferred the taste of food and drink items displaying the McDonalds branded packaging to identical products in matched, but unbranded, packaging. This was true even of items that were not available for purchase at McDonalds at the time, such as carrot sticks.

**Advertising impacts on children’s food intake**

Using a within-participants paradigm in a cross-sectional experimental study, Halford, Gillespie, Brown, Pontin, and Dovey (2004) found that exposure to food advertising increased food intake in all children (see Fig. 3). This finding was later replicated in 5–7 year old children (Halford et al., 2007) (see Fig. 4). Interestingly, a further study demonstrated that not only did food advertising exposure produce a substantial and significant increase in caloric intake (of high fat and/or sweet energy-dense snacks) in all children, but also that this increase in intake was largest in the obese children (Halford et al., 2008b). This suggests that overweight and obese children are more responsive to food promotion, and that such promotion specifically stimulated the intake of energy-dense snacks (Halford et al., 2008b). It is important to note that the foods offered to children taking part in these studies were not the same items that were represented in the food adverts they were exposed to. Therefore the effect of food advertising is not limited to increasing intake of the particular item being advertised; rather it is a beyond-brand effect stimulating the consumption of all snack foods on offer.

However, advertisements for healthier food products have also been shown to have an impact. Both Dixon, Scully, Wakefield, White, & Crawford (2007) and Beaudoin, Fernandez, Wall, & Farley (2007) found that adverts for nutritious foods promoted positive attitudes and beliefs concerning these foods. However, personality traits may be a selective barrier to children’s responsiveness to

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**Fig. 2.** Mean (SEM, indicated by the error bars) number of branded and non-branded items selected from a food preference measure in each condition according to macronutrient category (from Boyland et al., 2011a). *P < .01, bP < .001, indicate a significantly greater number of items selected by high television (TV) viewers compared with low television viewers.

**Fig. 3.** The weight of food eaten after viewing advertisements by lean, overweight and obese groups in the session with non-food ads (open columns) and in the session with food ads (filled columns); mean values with SE bars; (from Halford et al., 2004).
healthy eating messages. Dovey, Taylor, Stow, Boyland, & Halford (2011) found that although all children over consumed in response to unhealthy food adverts; children with low levels of food neophobia (fear of novel foods) appeared to respond to healthy food messages whilst children with higher levels of food neophobia did not.

Conclusion

In conclusion, children are exposed to extensive marketing activity through a variety of media and non-broadcast sources at all stages of their development. Its impact is readily demonstrated by their brand recognition, and its influence on eating behaviour (total intake and food choice) has been robustly shown in a number of recent studies with a variety of experimental paradigms. Whilst some regulation has been introduced in the UK to govern the advertising of HFSS foods to try to reduce these impacts, question marks remain over the effectiveness of the rules in their current form. As it has been estimated that the number of overweight children aged 3–11 years could be reduced by 18% with a ban on HFSS food advertising (Chou, Rashad, & Grossman, 2008), it seems that an opportunity is being missed by the UK and other countries to make a clear and decisive step towards protecting the health of our young people from ubiquitous and irresponsible food marketing.

Whilst the effects of advertising through newer forms of media have not yet been analysed extensively, it is likely that their influence on purchasing and consumption is similarly noteworthy. As young people tend to be avid users of new media, these marketing effects will contribute significantly to the dietary preferences of children as well as sustaining the brand message promoted in more traditional advertising forms. Whilst much of the research focus has been on the negative consequences of marketing activity on children’s diets, the potential for health promotion remains largely under investigated and under exploited. Harnessing the power of advertising avenues in order to encourage the uptake of healthier dietary choices may be a useful tool in the fight against rising levels of childhood obesity across the globe.

References
