



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

University of Wollongong  
Research Online

---

Faculty of Health and Behavioural Sciences - Papers  
(Archive)

Faculty of Science, Medicine and Health

---

2012

# Branded food references in children's magazines: 'advertisements' are the tip of the iceberg

Sandra C. Jones

*University of Wollongong, sandraj@uow.edu.au*

Parri Gregory

*University of Wollongong*

Lisa K. Kervin

*University of Wollongong, lkervin@uow.edu.au*

---

## Publication Details

Jones, S. C., Gregory, P. & Kervin, L. K. 2012, 'Branded food references in children's magazines: 'advertisements' are the tip of the iceberg', *International Journal of Pediatric Obesity*, vol. 7, no. 3, pp. 220-229.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library:  
[research-pubs@uow.edu.au](mailto:research-pubs@uow.edu.au)

---

# Branded food references in children's magazines: 'advertisements' are the tip of the iceberg

## **Abstract**

**Objective:** While children's magazines 'blur the lines' between editorial content and advertising, this medium has escaped the calls for government restrictions that are currently associated with food advertisements aired during children's television programming. The aim of this study was to address significant gaps in the evidence base in relation to commercial food messages in children's magazines by systematically investigating the nature and extent of food advertising and promotions over a 12-month period. **Method:** All issues of Australian children's magazines published in the calendar year 2009 were examined for references to foods or beverages. **Results:** Approximately 16% of the 1678 food references identified were portrayals of branded food products (or food brands). However, only 83 of these 269 were clearly identified as advertisements. Of these 269 branded food references, 86% were for non-core (broadly, less healthy) foods, including all but seven of the advertisements. **Conclusions:** It appears that recent reductions in televised promotions for non-core foods, and industry initiatives to reduce the targeting of children, have not carried through to magazine advertising. This study adds to the evidence base that the marketing of unhealthy food to children is widespread, and often covert, and supports public health calls for the strengthening of advertising regulation.

## **Keywords**

references, children, magazines, food, advertisements, iceberg, tip, branded

## **Disciplines**

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

## **Publication Details**

Jones, S. C., Gregory, P. & Kervin, L. K. 2012, 'Branded food references in children's magazines: 'advertisements' are the tip of the iceberg', *International Journal of Pediatric Obesity*, vol. 7, no. 3, pp. 220-229.

**Title:** Branded food references in children's magazines: 'advertisements' are the tip of the iceberg

**Running Title:** Branded food references in children's magazines

**Type of Manuscript:** Original Article

**Word Counts:**

Abstract:	199
Body of manuscript:	3,856
Total:	5,738

**Authors:** Sandra C. Jones,<sup>1</sup> Parri Gregory,<sup>1</sup> Lisa Kervin<sup>2</sup>

<sup>1</sup> Centre for Health Initiatives, University of Wollongong

<sup>2</sup> Faculty of Education, University of Wollongong

**Corresponding Author:**

Prof Sandra C Jones

Centre for Health Initiatives, University of Wollongong

Northfields Ave, Wollongong, New South Wales, Australia 2522

Phone: +61 2 4221 5106 Fax: +61 2 4221 3370 Email: [sandraj@uow.edu.au](mailto:sandraj@uow.edu.au)

**Conflict of Interest:**

The authors declare that there are no conflicts of interest. This study was funded by an Australian Research Council (ARC) Discovery Grant, awarded to the first and third authors. The ARC had no involvement in the study design, analysis or decision to submit the manuscript.

What is already known about this

subject

- There are high levels of food advertising during children's television programming.
- Children's magazines provide a unique opportunity for marketers to communicate with children.
- Magazines provide an even greater opportunity than television for blurring the lines between entertainment and advertising.

What this study adds

- More than three-quarters of branded food promotions were for non-core foods.
- Less than a third of branded food promotions were clearly identified as advertisements.
- Industry self-regulation is failing to protect children from covert marketing of unhealthy foods.

## ABSTRACT

Objective: While children's magazines 'blur the lines' between editorial content and advertising, this medium has escaped the calls for government restrictions that are currently associated with food advertisements aired during children's television programming. The aim of this study was to address significant gaps in the evidence base in relation to commercial food messages in children's magazines by systematically investigating the nature and extent of food advertising and promotions over a 12-month period.

Method: All issues of Australian children's magazines published in the calendar year 2009 were examined for references to foods or beverages.

Results: Approximately 16% of the 1,678 food references identified were portrayals of branded food products (or food brands). However, only 83 of these 269 were clearly identified as advertisements. Of these 269 branded food references, 86% were for non-core (broadly, less healthy) foods, including all but seven of the advertisements.

Conclusions: It appears that recent reductions in televised promotions for non-core foods, and industry initiatives to reduce the targeting of children, have not carried through to magazine advertising. This study adds to the evidence base that the marketing of unhealthy food to children is widespread, and often covert, and supports public health calls for the strengthening of advertising regulation.

Keywords: advertising, Australia, children, covert marketing

## INTRODUCTION

Food advertising is a particular concern in Australia, as in many other countries, because of its posited link with childhood overweight and obesity. Concerns about the effects of increasing advertising exposure on children include the promotion of materialistic values, consumerism (1), childhood obesity and poor eating habits, and the formation and maintenance of gender and ethnic stereotypes (2).

Television advertising has been criticised with regard to obesity because it disproportionately promotes the consumption of non-core (broadly, less healthy) over core (broadly, more healthy) foods. Numerous studies across a range of countries – including the US (3), the UK (4), Portugal (5), Iran (6), New Zealand (7), and Australia (8) – have shown that there are high levels of food advertising during children's viewing times and that these advertisements are predominantly for foods high in fat, salt or sugar.

However, print advertising has often been ignored in research and the associated literature despite the fact that the distinction between content and advertising can be subtler, leaving children more vulnerable to influence.

### **Food advertising in children's print media**

Children's magazines provide a unique opportunity for marketers to 'talk' to children, and the opportunity to reach these vulnerable audiences with print media has expanded over the last decade (9); in Australia the number of magazines targeting children is increasing, and they are increasingly identifying and developing niche markets. For example, in 2009 under the 'Disney' title children could choose from: Disney Adventures, targeting children aged 6 and over; Disney Girl which targeted girls aged 6 to 13 who were described as "(spending their) pocket money on lip glosses, toys, CDs, DVDs, clothing and accessories"; and Disney's Princess which targeted girls aged 3 to 9 (<http://www.acp.com.au/Magazines.htm>).<sup>1</sup>

---

<sup>1</sup> In 2010, Disney Adventures and Disney Girl were merged to form Disney – which is promoted to advertisers as: "a safe, trustworthy and fun publication for the whole family to enjoy, aimed at girls and boys aged 6-11....We invite our advertising partners to gain

Children's magazines have been criticized for 'blurring the lines' between editorial content and advertising (10, 11). Studies have shown that not only do children find it difficult to distinguish between advertising and editorial content (12), even experienced marketing academics are unable to determine whether selected pages from children's magazines are advertisements or product placements (13).

Because the promotion of branded food products in children's magazines is a strangely hidden phenomenon, it has so far escaped the parental condemnation and calls for government restrictions that are currently associated with food advertisements aired during children's television programming. In fact, readership of children's magazines is blossoming with seeming parental approval, yet there is very limited research data available on the extent and nature of this type of food promotion. We previously reported on an analysis of food advertising in seven Australian child-targeted magazines for the period January to December 2005, finding an average of five branded food advertisements or promotions per issue, only 13% of which were clearly identified as an advertisement (14).

Since that time the Australian Association of National Advertisers has introduced two new codes of practice: the Food & Beverages Advertising & Marketing Communications Code (15); and the Australian Association of National Advertisers (AANA) Code for Advertising and Marketing Communications to Children (16).

There have also been industry 'initiatives', such as the Australian Quick Service

---

maximum exposure into their target market, whilst benefiting from the hype and sensation that comes along with the popular Disney brand". (<http://www.nextmedia.com.au/media-kits/disney-media-kit.pdf>)

Restaurant Industry Initiative for Responsible Advertising and Marketing to Children, introduced in August 2009, which was designed “to ensure that only food and beverages that represent healthier choices are advertised to children” (17).

## **METHODS**

There has been no published research since this time examining whether the introduction of these codes and initiatives has resulted in the posited reduction in children's exposure to advertising for unhealthy foods. Importantly, this earlier study did not address the type of food advertised/promoted in these magazines (i.e., core or non-core foods) and only included seven magazine titles. Therefore, the aim of this study was to address the significant gaps in the evidence base by systematically investigating the nature and extent of food advertising and promotions in children's magazines over a 12-month period. Additionally, the study provided an opportunity to compare the amount and type of food advertising and promotions in the six magazine titles that were included in both the 2005 and 2010 analysis.

### **Children's Magazines**

In this study, magazine titles were collected and included if they were published in Australia in 2009, target children up to the age of 12 years, and were distributed either through newsstands or through schools. All issues of current Australian children's magazines fitting these criteria were examined over a 12-month period, January to December 2009. In total, 14 magazine titles were examined (including both Just Kidding and Just Kidding Junior which are analysed as one below). Nine of these

magazines were released monthly, three bi-monthly and the remaining two bi-annually (Bratz) and 11-times annually (Wacky...But True!). Three individual magazine issues could not be obtained, and three 'special editions' were included, meaning that 139 magazine editions were included in this study. The full list of magazines included, their circulation and issue frequency is shown in Table 1.

\*\*\*TABLE 1 ABOUT HERE\*\*\*

### **Classification of Food and Beverage References**

Every page (including front and back covers) of these 139 magazines was systematically examined for references to foods or beverages (herein referred to as 'food references'). These codes were developed and trialled in a previous study of food advertising in children's magazines (14). The food references included (but were not limited to) pictures of foods, unbranded editorial references to foods, and recipes, as well as advertisements and promotions. While the focus of the study was on branded food references, it was seen as important to quantify the proportion of food references in the magazines that were commercial in nature.

Using this refined coding schedule, a trained research assistant read each magazine and tagged every food reference, and entered the details into a spreadsheet. For each food reference this included: the name of the publication, month/issue, page number, product name or food/beverage type (e.g., apple, Milo, lasagne, Wizz Fizz), company/brand (if applicable), core/non-core food status, and specific food category (e.g. fruit, dairy, chocolate and confectionery). Each food reference was also coded as

either a branded reference (i.e., a food product or range of products for which the brand name and identifiers were visible) or an unbranded reference (no brand stated or portrayed; for example, a textual reference to a food, a picture of a cupcake or a box of popcorn).

For the first and fifth month's issues, a second research assistant re-checked each magazine (with the tags removed) and recorded the issue and page number of every food reference. A second coder enabled the division of complex coding through the use of a validated coding scheme (as suggested by Neuendorf (18)). The two lists were compared and the number of discrepancies was sufficiently small as to enable us to continue with the single coder (less than 10 food references in each set of 14 magazines identified by each coder that were not identified by the other; none of these were branded food references).

Following comprehensive training, and using a detailed coding guide, the research assistant coded each branded food reference according to the categories utilised in the previous Australian study (14); see Table 2. Each food or beverage referenced was then classified based on the Australian Guide to Healthy Eating. A food was therefore classified as a 'core food' if it belonged to any of the following categories: bread, cereals, rice, pasta, noodles; vegetables; fruit; milk, yoghurt, cheese; meat, fish, poultry, eggs, nuts, legumes; or if it primarily consisted of core foods (e.g., homemade pizza, tacos). A food was classified as a 'non-core' food if it fit into the 'Extra Foods' category as defined in the Australian Guide to Healthy Eating (e.g., cakes, soft drinks, crisps, chocolate, pies).

\*\*\*TABLE 2 ABOUT HERE\*\*\*

To establish inter-coder reliability, a second coder then coded a 10% sample of the magazines. This inter-coder agreement was needed to ensure "the extent to which the different judges tend to assign exactly the same rating to each object" ((19), p. 98).

We were confident that reliability levels through this procedure would be adequate (based on the reliability testing results from the previous study (14)). Therefore, only a sample was selected to ensure inter-coder reliability (not less than 10% of the full sample as recommended by Neuendorf (18)). Seven out of 191 food references were coded differently, representing an agreement rate of 95.3%. The discrepancies were discussed with two of the authors (SJ and LK) and further training provided to ensure coding was consistent with the category definitions. Following this additional training, the research assistant coded the remainder of the food references. The first author conducted a visual check of a random selection of 100 food references across the sample prior to the commencement of data analysis and no further discrepancies in coding were identified.

## **RESULTS**

During the study period, there were 1,678 references to food in the 139 magazines analysed, an average of 12.1 per magazine issue. Considerably more food references were observed in Total Girl (354) than any other magazine, followed by Disney Girl (212), Girl Power and Little Angel (207 each) and Disney Adventures (194).

### **Branded Food References**

Approximately 16% (269) of the food references were portrayals of branded food products (or food brands). Only 83 of the 269 (30.9%) were clearly identified as being an advertisement – that is, they either included the word ‘advertisement’ or were presented separately from the editorial content of the magazine (Table 3). A substantially greater number (104; 38.7%) were product placements from a food company; that is branded food references that were not separate from the editorial content of the magazine (such as the ‘what’s hot now’ pages).

Just under 20% of branded food references were competitions; with children able to enter to win a prize ranging from confectionery to electronic equipment. Just over two thirds (68%) of the prizes were confectionery (56% (n= 27) a small amount of confectionery valued at under AU\$30; 12% (n= 6) confectionery valued at over AU\$30 value); 19% (n= 9) were a combination of confectionery with other prizes (eg; stationery, books, movie passes, magazine subscriptions, etc.); and 13% (n= 6) were large prizes (such as an electronic console. An example of the latter is a competition with prizes that included an LCD television, PS3 console, PSP console, DVDs, stationery, jelly bean confectionery and merchandise and movie tickets.

A far smaller number were non-food advertisements by food companies (14), 12 of which were sports-related; advertisements for premiums (9), five for Hungry Jacks and four for McDonalds; and puzzles or games (6).<sup>2</sup>

\*\*\*TABLE 3 ABOUT HERE\*\*\*

---

<sup>2</sup> Note that these are differentiated from ‘competitions’ by not offering a prize

Of these 269 branded food references, 232 were for non-core foods (86.2%) (Figure 1). There were only 37 (13.8%) branded food references featuring core foods: 20 product placements, 7 regular food advertisements, 5 non-food advertisements, 4 competitions and one puzzle/game. These were predominantly for core foods, such as tinned fish and baked beans (16), dairy products, such as milk, cheese and yoghurt (10); 'healthy' breakfast cereal<sup>3</sup> (7); and fruit and vegetables, including tinned corn kernels and sultanas (3).

Of the non-core foods featured in these advertisements and promotions, over half (51.3%) were for chocolate and confectionery, followed by snack foods (14.1%), high sugar drinks and ice-blocks (6.7%) and non-core fast food or takeaway (6.7%).

Our 2005 study (14) found a total of 444 branded food references across 82 issues of seven children's magazines; that is, an average of 5.4 per issue (substantially higher than the 1.9 per issue in the current study). However, in that earlier study 38.3% of branded food references were not identified as a food advertisement (either presented as an 'editorial' or a non-food advertisement by a food company), increasing to 43.9% in the current study.

\*\*\*FIGURE 1 ABOUT HERE\*\*\*

Comparing the six magazine titles that were included in both studies, we note both positive and negative changes in the presentation of branded food references (Table

---

<sup>3</sup> Breakfast cereals that are high in wholegrain/fibre and relatively low in sugar

4). The most striking finding is the overall drop in branded food references (from 442 to 163). We note increases in the proportions of 'regular food ads' (from 13% to 27%), competitions (from 16% to 23%), promotions not identified as advertisements (33% to 37%) and non-food ads by food companies (from 3% to 7%); and decreases in the proportions of advertisements for premiums (from 13% to 5%), puzzles or games (from 14% to 1%), and references that could not be classified (from 7% to nil).

\*\*\*TABLE 4 ABOUT HERE\*\*\*

However, these figures obscure a number of interesting findings at the individual title level. We note that those magazines with few branded food references in 2005 (Mania, D-Mag and Krash) have had modest declines in the number of these messages and, for two of them, substantial increases in the proportion clearly identified as food advertisements. However, a different pattern emerges for the three that had a large number of branded food references in 2005. We note a substantial increase in promotions not identified as advertisements in Total Girl (from 27%<sup>4</sup> to 62%); and a smaller, but still notable increase, in Disney Adventures (from 31% to 40%).

Of the magazines included in this study, Disney Adventures had by far the most advertisements and promotions, almost double that of the second-highest magazine, with 60 branded food references across 12 issues (an average of 5.0 per issue). Four magazines averaged two or more branded food references per issue (Total Girl, Disney Girl, Just Kidding and Girl Power); and five averaged between one and two

---

<sup>4</sup> Note that even if all of the references we were unable to classify in 2005 were included in this category, there has still been an increase from 48% to 62%)

per issue. Only three of the magazine titles (Scientriffic, Bratz and Wacky...But True!) contained no branded food references. Scientriffic is produced by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and does not carry advertising other than promotions for educational programs and science websites; Wacky...But True (which is designed for educational purposes and has a no-advertising policy); and Bratz magazine (which targets young girls) and does not appear to carry advertising other than for Bratz products and other magazines published by Otter Press.

It is interesting to note that the 60 branded food references in Disney Adventures represent 30.9% of the 194 food references in that title during the study period, whereas the 34 advertisements in Total Girl make up just 9.6% of its 354 food references in the year (Table 5).

\*\*\*TABLE 5 ABOUT HERE\*\*\*

The 269 advertisements and promotions were for 78 different companies. Table 6 shows all companies that featured in more than two advertisements or promotions in children's magazines during 2009.

\*\*\*TABLE 6 ABOUT HERE\*\*\*

The most frequent children's magazine advertiser, All Fect, manufacture the 'Cosmic' brand of candy, which featured in 23 advertisements. Other prominent advertisers included Cadbury with 18 advertisements, all of which were for non-core foods (all

were chocolate products, predominantly Easter eggs, Cadbury koalas and Freddo® frogs); and Nestle with 15 advertisements, 14 of which were for non-core foods (predominantly for Milo, Smarties and a range of cookies).

## DISCUSSION

On average, there were 12.1 references to food in each of the 139 magazines analysed in this study, indicating reasonably strong promotion of food in children's magazines. There has been substantial pressure on food companies to reduce the level of advertising to children, with many companies and industry bodies voluntarily reducing their advertising. However, this study suggests that reports of a reduction in advertising to children must be interpreted with caution.

We found a dramatic decrease in the amount of food advertising to children since our 2005 study (14) but an increase in the proportion of branded food references that do not technically constitute 'advertising.' More than a third of branded food references in this broad sample of children's magazines were product placements (or apparent editorial references to a branded product). It is important to note that previous research has demonstrated that children do not necessarily identify these types of placements as commercial in nature, rather perceiving them as advice from the magazine editors/writers on what products are 'popular' and what they should have or want (12).

This does not apply to all children's magazines, however, with some much better than others in this respect. For example, three magazines (Scientrific, Bratz and

Wacky...But True!) had no food advertisements or promotions in any of their 2009 editions, although only two issues of Bratz and five issues of Scientriffic were included in this analysis. On the other hand, Disney Adventures included the most food advertisements, with an average of five per issue.

### **Overwhelming presence of non-core foods**

Of these 269 branded food references, 232 (86.2%) were for non-core foods, demonstrating the same dominance of unhealthy food messages in children's magazines that has been found in children's television viewing times.

When the appearance of a food product was clearly an advertisement or promotion, the ratio of non-core to core foods was even worse: of the 83 advertisements identified in the magazines, 91.6% (that is, all but seven), featured non-core foods. This is even higher than proportion of advertised foods on television that are high in fat and/or high in sugar, which has been the focus of sustained public health attention and concern. These studies have reported that the proportion of 'unhealthy' food advertising was between 55% and 81% of all foods advertised (20-23). More recent studies have found a slight reduction in this percentage (8, 24); and it appears possible that this may reflect a move away from television advertising to media that are less visible to those outside of the target group (such as magazines and the Internet).

In a further demonstration of this tendency for advertised food to be high in fat, sugar and/or salt, eight of the nine most prominent advertisers produce chocolate or confectionery, with the one exception being fast food chain McDonalds. In fact, of the

28 most prominent advertisers in children's magazines (as listed previously), 16 predominantly produce chocolate and/or confectionery, while two each produce and advertise: fast foods, high sugar drinks, and cookies. Just six of these 28 companies predominantly produce and advertise core foods: Sanitarium and Kellogg's (cereals), Bega and Kraft (dairy), Heinz (baked beans) and Coles Supermarkets (who produce a wide range of foods, but advertised products such as almonds, juice, and milk).

The most common type of branded food references were product placements, where clearly branded foods are featured but it is not obvious that the company in question has paid for this advertising space. Further to this, nearly one in five promotions seen in these magazines were competitions. Less than one-third of these instances were a clear, regular advertisement for food. This clearly demonstrates how it can be confusing for children to determine what is and what is not a paid advertisement in magazines, especially given that it has been previously found that children under the age of 12 see advertisements as entertainment, believe that they provide information, and cannot distinguish between information and intent to persuade (25). The prominence of competitions reinforces this notion as the reader is required to engage in activity whilst also being exposed to the product; a recent study found that younger children are more easily influenced by brand placements in games than are older children (26).

### **Effectiveness of industry self-regulation**

The AANA defines advertising as "matter which is published or broadcast using any Medium in all of Australia or in a substantial section of Australia for payment or other

valuable consideration and which draws the attention of the public or a segment of it, to a product, service, person, organisation, or line of conduct in a manner calculated to promote or oppose directly or indirectly that product, service, person, organisation or line of conduct” (16). Thus, the issue of distinguishing between ‘advertising’ and ‘editorial’ content is not only one that perplexes child (and adult) readers but also one that impacts on the ability of the system in its present form to protect children from exposure to messages about unhealthy foods. It would appear that the majority of branded puzzles and competitions (n= 59) meet the definition of ‘advertising’ whereas the situation is less clear for product placements (n= 104). It seems unlikely that all of these branded food mentions are inserted by the publishers for no ‘payment or valuable consideration’ (particularly when they include information such as prices and where they can be purchased); however, we are unable to confirm this assumption.

In relation to advertising to children, the AANA Code states that “Advertising or Marketing Communications to Children: (c) must fairly represent, in a manner that is clearly understood by Children: (i) that the Advertising or Marketing Communication is in fact a commercial communication rather than program content, editorial comment or other non-commercial communication” (16). Based on previous research with children (12), it is unlikely that the target audience of these magazines (children as young as three years of age) have the cognitive capacity to understand that the puzzles and games, and the ‘placements’ (where these meet the definition of advertising), are commercial content. It is alarming to note the subtle and frequent nature of food references that appear in forms other than clearly identified advertisements; these appear to be embedded within the values and attitudes of the

creators of the publications which in turn send messages of accepted choices and behaviours to these young readers.

It is also concerning to note that, despite being signatories to the Australian Quick Service Restaurant Industry Initiative For Responsible Advertising And Marketing To Children (17), both Hungry Jacks and McDonalds ran promotions for their children's meals after the introduction of the Initiative; all five<sup>5</sup> of the Hungry Jacks Kids Club Meal and all 10<sup>6</sup> of the McDonalds Happy Meal promotions (the eleventh was a promotion for McHappy Day) ran in or after August. As is typical of these advertisements, all 15 advertised the premium that was available with the children's meal and featured the logo but no image of the food (although their in-store and website promotional materials specify that you can choose to substitute the fries for a fruit/snack bag and the soft drink for water).

## **Conclusion**

A recent report commissioned by the Australian Food and Grocery Council acknowledges "the high level of community concern about the nature and extent of advertising of foods high in energy, fat, sugar and salt to children", but states that there is minimal television advertising of non-core foods that directly targets children (27). As this study has shown, this finding clearly does not apply to the range of advertising tools employed in children's magazines.

---

<sup>5</sup> two in August, three in September

<sup>6</sup> two in August, one in November, and seven in 'special' issues

Given the influence that all forms of media have on children, it should be a concern that images and descriptions of non-core foods are ubiquitous in children's magazines. Embedded within each of the magazines we have examined are strong messages about food choices and associated behaviours – including the food to want, the food to buy, and the price and location of the products that are promoted within these pages. Food advertising has previously been found to have a significant effect on children's food preferences, purchase requests and food consumption patterns (28, 29). The fact that the overwhelming majority of food advertisements and promotions in children's magazines are for non-core foods, and that the majority of these are not clearly identified as advertising, is a particularly worrying finding. This study adds to the evidence base that the marketing of unhealthy food to children is widespread, and often covert, and supports public health calls for the strengthening of advertising regulation.

## **ACKNOWLEDGEMENTS**

This study was funded by an Australian Research Council (ARC) Discovery Grant (DP0984651), awarded to the first and third authors. The authors thank Kelly Andrews, Nadia Mannino, Jessica Mantei, Keiken Munzner

## **REFERENCES**

1. Buckleitner W. Like taking candy from a baby: how young children interact with online environments. New York: WebWatch 2008.
2. Moses LJ, Baldwin DA. What can the study of cognitive development reveal about children's ability to appreciate and cope with advertising. *Journal of Public Policy and Marketing*. 2005; 24:186-201.

3. Kotz K, Story M. Food advertisements during children's Saturday morning television programming: are they consistent with dietary recommendations? *Journal of the American Dietetic Association*. 1994; 94(1):1296–300.
4. Hastings G, Stead M, McDermott L, et al. Review of research on the effects of food promotion to children. London: Food Standards Agency 2003.
5. Lemos D. Saturday morning children television food advertising...The nightmare of nutrition educators. *Journal of Pediatric Gastroenterology and Nutrition*. 2004; 39(S1):S471–S2.
6. Maryam A, Mehdi M-R, Masood K, Mosoomah G, Nasrin O, Yadollah M. Food advertising on Iranian children's television: A content analysis and an experimental study with junior high school students. *Ecology of Food and Nutrition*. 2005; 44(2):123–33.
7. Wilson N, Signal L, Nicholls S, Thomson G. Marketing fat and sugar to children on New Zealand television. *Preventive Medicine*. 2006; 42(2):96-101.
8. Kelly B, Smith B, King L, Flood V, Bauman A. Television food advertising to children: the extent and nature of exposure. *Public Health Nutrition*. 2007; 10(11):1234-40.
9. Curtis J. Small targets. *Marketing*. 2004:38.
10. Danish Consumer Ombudsman. Covert marketing activities: identifying commercial communication. 2005; Available from: <http://www.forbrug.dk/english/dco/dcoguides/guidelines-and-guidances/covertmarketing/>.
11. Kraak V, Pelletier DL. How marketers reach young consumers: implications for nutrition education and health promotion campaigns. *Family Economics and Nutrition Review*. 1998; 11:31-41.

12. Jones SC, Mannino N, Green J. "Like me, want me, buy me, eat me": Relationship-building marketing communications in children's magazines. *Public Health Nutrition*. 2010; 13(12):2111-8.
13. Acharya DS, Mizerski R, editors. Expert opinion on the content and intention of material from a magazine targeted to 7 to 10 year old beginning readers. Australian and New Zealand Marketing Academy Conference; 2005; Perth.
14. Jones SC, Reid A. Children's magazines: reading resources or food marketing tools? . *Public Health Nutrition*. 2010; 13(3):393-9.
15. Australian Association of National Advertisers. AANA Food & Beverages Advertising & Marketing Communications Code. Sydney, NSW: Australian Association of National Advertisers; 2009.
16. Australian Association of National Advertisers. Code for Advertising & Marketing Communications to Children. Sydney, NSW: Australian Association of National Advertisers; 2009.
17. Australian Association of National Advertisers. Australian Quick Service Restaurant Industry Initiative for Responsible Advertising and Marketing to Children. Sydney, NSW: Australian Association of National Advertisers; 2009.
18. Neuendorf K. *The content analysis guidebook*. Thousand Oaks, CA: Sage; 2002.
19. Tinsley HEA, Weiss DJ. Interrater reliability and agreement. In: Tinsley HEA, Brown SD, editors. *Handbook of Applied Multivariate Statistics and Mathematical Modeling*. San Diego, CA: Academic Press; 2000. p. 95-124.
20. Chapman K, Nicholas P, Supramaniam R. How much food advertising is there on Australian television? *Health Promotion International*. 2006; 21(3):172-80.

21. Hill J, Radimer K. A content analysis of food advertisements in television for Australian children. *Australian Journal of Nutrition and Dietetics* 1997; 54(4):174-81.
22. Neville L, Thomas M, Bauman A. Food advertising on Australian television: the extent of children's exposure. *Health Promotion International*. 2005; 20(2):105-12.
23. Zuppa J, Morton H, Mehta K. Television food advertising: counterproductive to children's health? A content analysis using the Australian Guide to Healthy Eating. *Nutrition and Dietetics*. 2003; 60:78-84.
24. King L, Hebden L, Grunseit A, Kelly B, Chapman K, Venugopam K. Industry self regulation of television food advertising: Responsible or responsive? . *International Journal of Pediatric Obesity*. 2010; 6(2-2):e390-e398.
25. Kunkel D, Wilcox B, Cantor J, Palmer E, S L, Dowrick P. Report of the APA taskforce on advertising and children: psychological issues in the increasing commercialization of childhood. Washington: American Psychological Association; 2004.
26. van Reijmersdal E, Jansz J, Peters O, van Noort G. The effects of interactive brand placements in online games on children's cognitive, affective and conative brand responses. *Computers in Human Behaviour*. 2010; 26:1787-94.
27. Australian Food and Grocery Council. Food and Beverage Advertising to Children: Activity Report. Barton, ACT: Australian Food and Grocery Council; 2010.
28. Boyland EJ, Harrold JA, Kirkham TC, Halford JC. The extent of food advertising to children on UK television in 2008. *International Journal of Pediatric Obesity*. 2011; 6(5-6):455-61.

29. Halford J, Boyland E, Hughes G, Stacey L, McKean S, Dovey T. Beyond-brand effect of television food advertisements on food choice in children: the effects of weight status. *Public Health Nutrition*. 2008; 11(9):897-904.

**Table 1: Magazines included in the analysis**

<b>Magazine</b>	<b>Circulation<sup>a</sup></b>	<b>Target Age<sup>b</sup></b>	<b>Target Gender<sup>b</sup></b>	<b>Issue Frequency</b>	<b>Issues Included</b>
Total Girl	55, 056	8-11	Girls	Monthly	12
Disney Girl	29, 098	9-12	Girls	Monthly	12
Girl Power	23, 999	7-13	Girls	Monthly	13 <sup>c</sup>
Little Angel	25, 164	5-10	Girls	Monthly	13 <sup>c</sup>
Disney Adventures	25, 548	9-13	Girls & boys	Monthly	12
Just Kidding	N/R	7-13	Girls & boys	Bi-monthly	6
Just Kidding Junior	N/R	3-6	Girls & boys	Bi-monthly	6
Mania	24, 068	7-15	Boys	Monthly	13 <sup>c</sup>
DMag	22, 689	9-15	Girls & boys	Monthly	11 <sup>d</sup>
K-Zone	55, 445	6-13	Boys	Monthly	11 <sup>d</sup>
Sciencriffic	N/R	7+	Girls & boys	Bi-monthly	5 <sup>d</sup>
Krash	N/R	11-14	Boys	Monthly	12
Wacky... But True!	N/R	8-15	Girls & boys	11 times/year	11
Bratz	N/R	8-12	Girls	Bi-annually	2
<b>Total</b>		-		-	<b>139</b>

<sup>a</sup> Circulation figures provided by NDD marketing; original source Audit Bureau of Circulations Top 100. These figures are for Australia only and represent the audit period January to June 2009.

<sup>b</sup> As stated on each magazine's website

<sup>c</sup> Includes a special issue

<sup>d</sup> One issue not available from supplier

**Table 2: Coding frame for branded food references**

A	Regular advertisements	These are advertisements for a food product that are clearly an advertisement (for the food or brand)
B	Advertisements for premiums	These are advertisements that promote a premium (i.e. a gift or bonus offered to encourage buyers to purchase a specific food item), rather than the food item itself
C	Competitions	These are advertisements for competitions that children can enter that either (a) require purchase of the food to enter; or (b) promote the food as a prize
D	Puzzles / games	These are not identified as ads, but are clearly sponsored or developed by a food company (and usually include the brand's name, logo, or character)
E	Product placements (not identified as advertisements)	Branded product references that are not obviously paid for by a food company. These are items that appear to be editorial or article comments rather than advertisements (e.g., the "calendar", "what's hot" columns or celebrity/magazine opinions)
F	Non-food advertisements by food companies	These are advertisements (or "public service announcements") that promote a non-food behaviour or idea (e.g., physical activity, road safety) but are clearly branded as being from a food company

**Table 3: Advertisements and Promotions in Children's Magazines**

<b>Advertising/Promotion Categories</b>	<b>Freq</b>	<b>%</b>
Product Placement	104	38.7
Regular Food Advertisement	83	30.9
Competition	53	19.7
Non-Food Advertisement (By Food Company)	14	5.2
Advertisement for Premium	9	3.3
Puzzle / Game	6	2.2
<b>Total</b>	<b>269</b>	<b>100.0</b>

**Table 4: Food Advertisements or Promotions 2005 and 2010 (By Magazine)**

Coding category	<i>Total Girl</i>		<i>Mania</i>		<i>Disney Adv.</i>		<i>D-Mag</i>		<i>K-Zone</i>		<i>Krash</i>		<b>Total</b>	
	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010
A Regular Food Ads	16	5	0	5	13	19	6	0	18	3	4	12	57 (13%)	44 (27%)
B Ads for Premiums	18	2	0	2	18	0	3	1	19	3	1	0	59 (13%)	8 (5%)
C Competitions	13	4	12	7	21	16	0	2	23	5	2	3	71 (16%)	37 (23%)
D Puzzles or Games	20	0	0	1	14	0	0	1	27	0	0	0	61 (14%)	2 (1%)
E Promotions – Not Identified as Ads	37	21	13	9	31	24	5	1	47	4	13	2	146 (33%)	61 (37%)
F Non-Food Ads by Food Companies	5	2	3	1	3	1	1	6	3	1	0	0	15 (3%)	11 (7%)
G Other	29	0	2	0	0	0	1	0	1	0	0	0	33 (7%)	0
<i>Total</i>	138	34	30	25	100	60	16	11	138	16	20	17	442	163



**Table 5: Food Advertisements or Promotions (By Magazine)**

	<b>Freq</b>	<b>%</b>	<b>Average number per issue</b>	<b>% of all food references</b>
Disney Adventures	60	22.5	5.0	30.9%
Total Girl	34	12.7	2.8	9.6%
Disney Girl	31	11.6	2.6	14.6%
Just Kidding	25	9.3	2.1	23.1%
Girl Power	26	9.7	2.0	12.6%
Mania	25	9.3	1.9	24.3%
Little Angel	23	8.6	1.8	11.1%
K-Zone	16	5.9	1.5	19.0%
Krash	17	6.3	1.4	51.6%
DMag	11	4.1	1.0	11.1%
Sciencetriffic	0	-	0.0	0.0%
Bratz	0	-	0.0	0.0%
Wacky...But True!	0	-	0.0	0.0%
<b>Total</b>	<b>269</b>	<b>100.0</b>	<b>-</b>	<b>-</b>

**Table 6: Companies / Brands Featured in Advertisements and Promotions**

	<b>Foods Promoted</b>	<b>Core</b>	<b>Non-Core</b>	<b>Total</b>
All Fect	Confectionery	0	23	23
Cadbury	Chocolate	0	18	18
Nestle	Chocolate / Milo	1	14	15
McDonalds	Fast Food	0	11	11
Pez Candy	Confectionery	0	11	11
X-treme	Confectionery	0	11	11
Sweetmans	Confectionery	0	10	10
Fyna Foods	Confectionery	0	9	9
Mars	Chocolate	0	9	9
Coca Cola	Soft Drinks	0	7	7
Sipahh	Confectionery	0	6	6
Bega	Cheese	5	0	5
Hungry Jacks	Fast Food	0	5	5
Impact Confections	Confectionery	0	5	5
Mrs Fields	Cookies	0	5	5
Pink Lady	Chocolate	0	5	5
7-eleven	Slurpees	0	4	4
Coles	Various Foods	3	1	4
Hot-Shots	Cookies	0	4	4
Kraft	Cheese / Vegemite	2	2	4
Meiji	Confectionery	0	4	4
Sanitarium	Cereal	4	0	4

Artisse	Confectionery	0	3	3
Chupa Chups	Confectionery	0	3	3
Funtastic	Confectionery	0	3	3
Heinz	Baked Beans	3	0	3
Jelly Bean	Confectionery	0	3	3
Kellogg's	Cereal	2	1	3
<i>Other</i>	-	<i>15</i>	<i>57</i>	<i>72</i>
<b>Total</b>		<b>35</b>	<b>234</b>	<b>269</b>

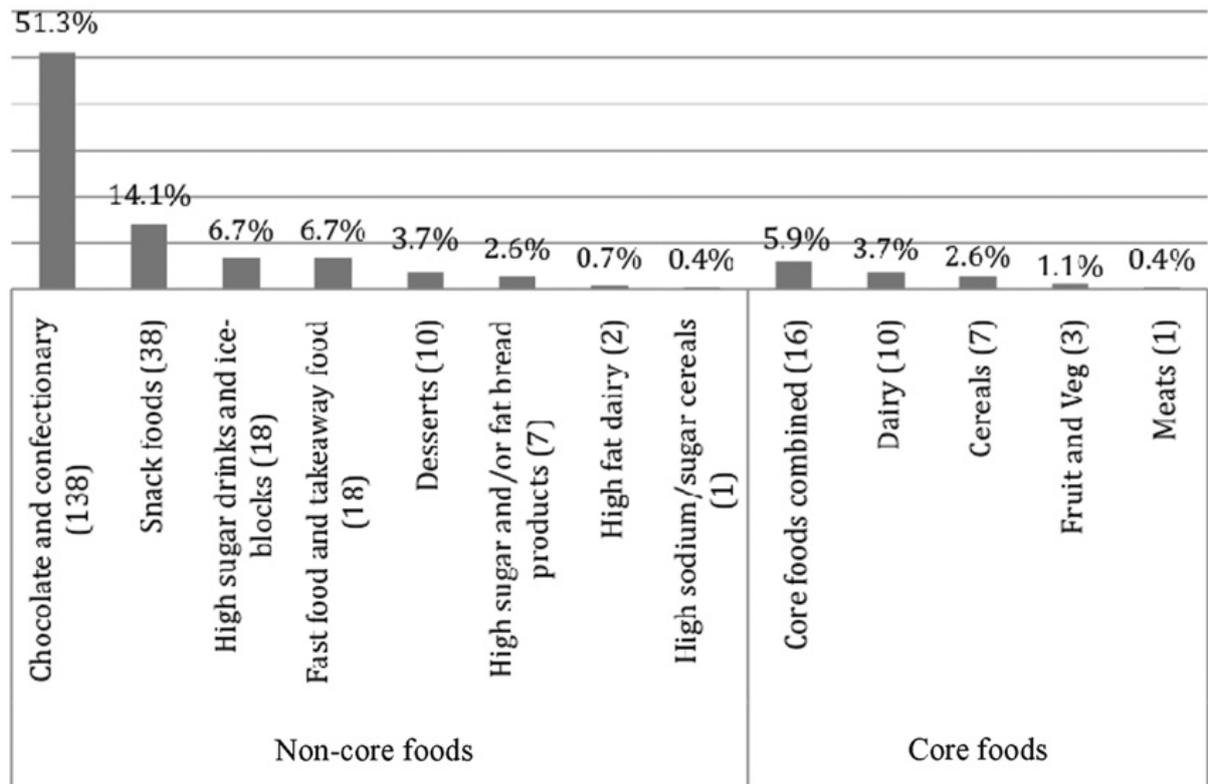


Figure 1 Branded food references in children's magazines.