



Content analysis of television food advertisements aimed at adults and children in South Africa

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Abstract

Objective: To determine the frequency and content of food-related television (TV) advertisements shown on South African TV.

Design: Four national TV channels were recorded between 15.00 and 21.00 hours (6 h each day, for seven consecutive days, over a 4-week period) to: (i) determine the number of food-related TV advertisements; and (ii) evaluate the content and approach used by advertisers to market their products. The data were viewed by two of the researchers and coded according to time slots, food categories, food products, health claims and presentation.

Results: Of the 1512 recorded TV advertisements, 665 (44%) were related to food. Of these, 63% were for food products, 21% for alcohol, 2% for multivitamins, 1% for slimming products and 13% for supermarket and pharmacy promotions. Nearly 50% of food advertisements appeared during family viewing time. During this time the most frequent advertisements were for desserts and sweets, fast foods, hot beverages, starchy foods and sweetened drinks. The majority of the alcohol advertisements (ninety-three advertisements, 67%) fell within the children and family viewing periods and were endorsed by celebrities. Health claims were made in 11% of the advertisements. The most frequently used benefits claimed were 'enhances well-being', 'improves performance', 'boosts energy', 'strengthens the immune system' and 'is nutritionally balanced'.

Conclusions: The majority of food advertisements shown to both children and adults do not foster good health despite the health claims made. The fact that alcohol advertisements are shown during times when children watch TV needs to be addressed.

Keywords

Television viewing
Food-related adverts
Health claims
South African television

Over the past two decades numerous studies have shown that obesity, and particularly childhood obesity, is increasing globally⁽¹⁾. South Africa is a middle-income country which has one of the highest levels of obesity in the world. A recent national study found that 14.0% of children aged 1–9 years, and 51.5% of women aged 16–35 years, had a BMI \geq 85th percentile or a BMI \geq 25 kg/m², respectively⁽²⁾. This is much higher in any other sub-Saharan African country⁽¹⁾. This problem has been attributed to numerous causes, including sedentary lifestyles, diet, socio-economic status, the physical environment and marketing associated with the media⁽³⁾.

Television (TV) is a powerful medium for marketing and advertising products^(3,4). There is evidence to suggest that greater TV watching is associated with increased consumption of snacks, sweetened beverages and fast foods^(5–7). Andreyeva *et al.*⁽⁵⁾ found that fast food and soft drink TV advertising was associated with increased

consumption of both these items among elementary-school children. Furthermore, fast food advertising was significantly associated with BMI of overweight and obese children. Zimmerman and Bell⁽⁶⁾ and Halford *et al.*⁽⁷⁾ found evidence to support the theory that TV viewing does not contribute to obesity because it is a sedentary activity, but because of children's responses to the advertisements themselves. Halford *et al.*⁽⁷⁾ further suggested that exposure to food advertisements promotes consumption. To substantiate these studies, a local study by Da Fonseca⁽⁸⁾ that aimed at exploring South African parents' perceptions of TV food advertising directed at children revealed that parents perceive food advertising as a strong influence on their children's food preferences and eating habits. Parents believed that although the Advertising Standards Authority of South Africa's (ASA) food and beverage code Section II, Clause 4.1⁽⁹⁾ discourages less healthful food promotional activity on TV

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directed at children younger than 12 years, it is ineffective in protecting children against advertisers. Moreover, numerous studies have documented the association between the number of hours/food advertisements on TV and the prevalence of obesity^(5,10,11). TV advertising contributes to childhood obesity by an estimated 16–40% in the USA, 10–28% in Australia and Italy and 4–18% in Britain⁽¹¹⁾.

In the USA in 2009, children aged 2–11 years watched an average of 10.9 to 12.7 food-related TV advertisements daily, and of these advertisements 86% were for products high in saturated fat, sugar or sodium⁽¹⁰⁾. In 2008 a global study of thirteen research groups in Australia, Western Europe, North and South America and Asia evaluated TV advertisements shown during children's viewing times⁽¹¹⁾. They found that food advertisements comprised 11–29% of all advertisements and that 53–87% of the food advertisements were for foods high in undesirable nutrients and energy⁽¹¹⁾. Similarly, in Turkey, 32.1% of all TV advertisements were related to foods of which 81% were classified as being unhealthy^(3,12). The findings of these and numerous similar studies reveal that people, especially children, are exposed to many TV food advertisements, most of which are for unhealthy foods.

There has been virtually no research into food advertising on TV in Africa. In a small study carried out in South Africa, Temple *et al.*⁽¹³⁾ reported that approximately 55% of advertisements were for fast-food restaurants or foods of poor nutritional value. Moreover, the only published study supporting this is by Da Fonseca⁽⁸⁾, which showed that South African parents would like to see a reduction of food advertising on TV and stronger restrictions being applied to TV food advertising during children's viewing hours. Moreover, the stricter ASA⁽⁹⁾ regulations have mandated at least thirty-one leading fast-moving consumer goods companies, such as Cadbury, Coca-Cola, Kellogg, McCain, Pioneer Foods, Roger Brands, Unilever, Pick and Pay, Nando's and Parmalat, to sign a pledge⁽¹⁴⁾ endorsed by the

Consumer Goods Council of South Africa based on the South African guidelines for healthy living⁽¹⁵⁾.

The current study sought to investigate whether there have been any significant changes in the status of commercial TV food-related advertising in South Africa since the study by Temple *et al.*⁽¹³⁾. The aims were to determine the frequency of food-related TV advertisements appearing on four different non-paying domestic TV channels viewed by the largest audiences. Furthermore, content analysis of these food-related TV advertisements was undertaken to determine the marketing approach used by advertisers to persuade both children and adults to buy their products.

Methods

Television broadcasting in South Africa

The South African TV viewing statistics by ethnicity in May/June 2011 indicated that 76.7% of blacks, 8.6% of coloureds (Afr-Eur-Malay), 2.7% of Asians and 12.0% of whites watched the national South African Broadcasting Corporation (SABC) TV channels⁽¹⁶⁾. TV in South Africa is broadcast in all eleven official languages; it receives its funding from both licence fees and advertising, and broadcasts on four non-paying domestic channels (SABC 1, 2, 3 and e-TV) with a mixed entertainment and public service mandate^(16,17). On all four TV channels the time interval 15.00–17.00 hours is dominated by child-focused programmes such as infomercials, educational programmes and cartoons⁽¹⁷⁾. The 17.00–19.00 hours time interval is dedicated to whole family viewing and includes talk shows and soap operas. The time interval 19.00–21.00 hours is mostly dedicated to adults and includes news broadcasts as well as soap operas and movies that are sometimes not suitable for persons younger than the age of 18 years (i.e. semi- to full-restriction soap operas and movies; Table 1)⁽¹⁷⁾.

Table 1 Programme diversity by number of viewers, time of viewing and TV channel⁽¹⁷⁾, South Africa

TV channel	Viewers* (millions)	Time slot		
		15.00–17.00 hours	17.00–19.00 hours	19.00–21.00 hours
SABC1	22.0	Educational Infomercials Cartoons	Soap operas Talk shows News	Talk shows News Semi- to full-restricted movies
SABC2	18.8	Infomercials Cartoons Soap operas	Soap operas News	Talk shows News Semi- to full-restricted movies
SABC3	14.9	Infomercials Soap operas Talk shows	Soap operas Talk shows News	Talk shows News Semi- to full-restricted movies
e-TV	17.9	Infomercials Soap operas	Soap operas News	Talk shows News Semi- to full-restricted movies

TV, television; SABC South African Broadcasting Corporation.

*Viewership numbers are approximations since people often switch between channels, thus the total TV viewership seems to be higher than the total population of 48.1 million.

Table 2 Advertisements appearing on South African TV channels by time of viewing, 16 April–13 May 2011

Advertisement category	Advertisement type	Time slot						Total	
		15.00–17.00 hours		17.00–19.00 hours		19.00–21.00 hours		n	%
		n	%	n	%	n	%		
Food products	Meat, chicken, fish	3	2	11	6	1	1	15	4
	Starchy foods	24	17	27	15	16	17	67	16
	Desserts and sweets	39	28	37	20	18	19	94	22
	Sweetened drinks	15	11	14	10	12	13	41	10
	Margarines and spreads	3	2	5	3	4	4	12	3
	Franchises and fast foods	24	17	37	20	25	26	86	20
	Infant formula	3	2	2	1	0	0	5	1
	Milk and dairy products	11	8	14	10	10	10	35	8
	Fruit and vegetables	1	1	4	2	2	2	7	2
	Coffee, tea, condiments	15	11	35	19	8	8	58	14
Total of food products	138	84	186	57	96	55	420	63.2	
Alcohol	12	7	81	25	47	27	140	21.1	
Slimming products	2	4	2	1	0	0	4	0.6	
Multivitamin products	2	4	7	2	6	3	15	2.3	
Supermarket and pharmacy promotions	10	6	50	15	26	15	86	12.9	
Total of advertisements	164	24.7	326	49.0	175	26.3	665	100.0	

TV, television.

Procedures

The current study focused on food-related TV advertisements. Multivitamins and slimming products were included due to their relevance to nutrition and weight maintenance. TV advertisements were recorded for 6h each day for seven consecutive days within a period of 4 weeks, from 16 April 2011 to 13 May 2011. All advertisements were divided into three groups (Tables 1 and 2): (i) those aimed at children (appearing during the time slot 15.00–17.00 hours within and between the educational, infomercial and cartoon programmes); (ii) those aimed at both children and adults (i.e. the whole family, appearing during the time slot 17.00–19.00 hours within and between non-restriction soap operas (family drama), talk shows and early news broadcasts); and (iii) those aimed at adults (appearing during the time slot 19.00–21.00 hours within and between the late news and semi- to full-restriction movies).

The advertisements were viewed and coded by two researchers. The following information was collected: (i) TV channel; (ii) language of broadcast; (iii) name and type of programme; (iv) date and time of day; (v) target audience; (vi) company placing the advertisement; (vii) description of the product advertised; (viii) description of the health claim; (ix) personality presenting the advertisement; and (x) the inclusion of a web address in the advertisement. Health claims were recorded as being either implicit (having an implied function that is understood though not directly expressed by the advertisement) or explicit (having a clearly and fully defined function that is directly expressed by the advertisement). To test for reliability of coding, data from the first coder were compared with data of the second coder. When there was not 100% agreement between the two coders, re-coding was done until agreement between the two

coders was 100%. All advertisements were then classified into five categories, namely: (i) food products; (ii) alcohol; (iii) supermarket and pharmacy promotions; (iv) slimming products; and (v) dietary supplements (Table 2). Supermarket and pharmacy promotions were grouped separately from food products, slimming products and dietary supplements as they advertised special offers on food and on dietary supplements, food and slimming products.

Statistical analysis

Analyses were done using IBM SPSS Statistics 19 (2010). Descriptive statistics and cross-tabulations were used to analyse data. As such, data are presented as numbers and percentages.

Results

Out of the total of 1512 TV advertisements, 665 (44%) were related to food, 22% were related to clothing and furniture, and 34% were related to political party election campaigns. In the current study we dealt only with the 665 food-related advertisements. These advertisements were subsequently categorised into the five different groups, namely: 63.2% were for food products; 21.1% were for alcohol; 0.6% were for slimming products; 2.3% were for dietary supplements (multivitamins); and 12.9% were for promotions by supermarkets (defined as a large retail markets that sell food and other household goods and are usually operated on a self-service basis) or pharmacies. Table 2 shows that 140 alcohol advertisements were shown on TV at the time the research was undertaken. There were ten different categories under the food group, with the majority of advertisements being for

Table 3 Numbers of advertisements by time of viewing and TV channel in South Africa, 16 April–13 May 2011

Time slot	SABC1		SABC2		SABC3		e-TV		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
15.00–17.00 hours	41	34	48	24	53	26	22	15	164	24.7
17.00–19.00 hours	65	54	89	45	89	44	83	57	326	49.0
19.00–21.00 hours	14	12	60	31	59	29	42	29	175	26.3
Total of advertisements	120	18.0	197	29.6	201	30.2	147	22.1	665	100.0

TV, television; SABC South African Broadcasting Corporation.

Table 4 The proportion of advertisements that used health claims on South African TV channels, 16 April–13 May 2011

Type of advertisement	Total <i>n</i>	Explicit health claims		Without health claims	
		<i>n</i>	%	<i>n</i>	%
Meat, chicken, fish	15	0	0	15	100
Starchy foods	67	38	57	29	43
Desserts and sweets	94	1	1	93	99
Sweetened drinks	41	0	0	41	100
Margarines and spreads	12	7	58	5	42
Franchises and fast foods	86	0	0	86	100
Infant formula	5	5	100	0	0
Milk and dairy products	35	0	0	35	100
Fruit and vegetables	7	0	0	7	100
Coffee, tea, condiments	58	1	2	57	98
Alcohol	140	0	0	140	100
Slimming products	4	4	100	0	0
Multivitamin products	15	14	93	1	7
Supermarket and pharmacy promotions	86	7	8	79	92
Total of advertisements	665	76	11	589	89

TV, television.

desserts and sweets (22%), fast foods (20%), starchy foods (16%), condiments (14%), sweetened drinks (10%) and dairy products (8%). Meat, chicken and fish, margarine and spreads and infant formula had the least advertisements. Of the 665 food-related TV advertisements, only seven (2%) were for fruit and vegetables.

Table 3 indicates that the highest number of advertisements was recorded during family viewing time (17.00–19.00 hours; 326 (49.0%) advertisements). During children (15.00–17.00 hours) and adult (19.00–21.00 hours) viewing times there were 164 (24.7%) and 175 (26.3%) advertisements, respectively. The largest number of advertisements was shown on TV channels SABC 2 and 3 (197 and 201 advertisements, respectively) compared with SABC 1 and e-TV (120 and 147 advertisements, respectively; Table 3). Table 2 shows that the majority of advertisements that were presented during children's viewing time were for desserts and sweets (*n* 39, 28%), starchy foods and fast foods (each *n* 24, 17%), sweetened drinks (*n* 15, 11%), coffee, tea and condiments (*n* 15, 11%), alcohol (*n* 12, 7%) and milk and dairy products (*n* 11, 8%). Moreover, out of the total of 140 alcohol advertisements, the large majority (*n* 93, 67%) were shown during the children and family viewing time slots (15.00–17.00 and 17.00–19.00 hours, respectively; Table 2).

Of the 665 food-related TV advertisements, seventy-six advertisements (11%) had health claims that were also explicit (Table 4). These advertisements were for starchy foods (*n* 38, 50%), multivitamins (*n* 14, 18%), supermarket and pharmacy promotions (*n* 7, 9%), margarine and spreads (*n* 7, 9%), infant formula (*n* 5, 7%), slimming products (*n* 4, 5%) and desserts and sweets ('boosting energy'; *n* 1, 1%). All infant formula and slimming product advertisements had health claims. However, out of all the advertisements for multivitamins, for margarine and spreads, for starchy foods, for supermarket and pharmacy promotions and for desserts and sweets, 93%, 58%, 57%, 8% and 1%, respectively, had health claims (Table 4). The only advertisement under the desserts and sweets group that had a health claim was for a 'Yogurt Lollie Pop', claiming it to be fashionable ('cool' as per the advertisement) as it is 'fruit-based, full of energy and better than a glass of milk'. All slimming product advertisements recorded in the current study had claims that promised weight loss and maintenance of the newly found body size. Seventy-four per cent of the multivitamin advertisements promised balanced nutrition, growth and energy, improvement of performance, relief of constipation and a boost for the immune system. Of the fifty-two food products that carried health claims, thirty-seven (71%) promised enhancement of well-being.

**Table 5** Benefits claimed according to group of TV advertisements in South Africa, 16 April–13 May 2011

Benefit claimed	Total		Food products		Slimming products		Multivitamin products		Supermarket & pharmacy promotions	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Enhances well-being	39	51	37	95	0	0	2	5	0	0
Improves health by strengthening the immune system and providing balanced nutrition	15	20	4	27	0	0	4	27	7	47
Improves performance and growth and boosts energy	16	21	9	56	0	0	7	44	0	0
Relieves constipation and improves digestion	2	3	1	50	0	0	1	50	0	0
Weight loss	4	5	1	25	3	75	0	0	0	0
Total of benefits claimed	76		52		3		14		7	

TV, television.

Table 6 Advertisements by type of presenter on South African TV, 16 April–13 May 2011

Presenter category	Presenter type	<i>n</i>	%	Total of advertisements	
				<i>n</i>	%
Ordinary people	Adults	311	74.9	415	62.6
	Children	20	4.8		
	Family	84	20.3		
Celebrities	Actors, sports and TV personalities			69	10.4
Animation	Cartoons			13	2.0
Mixture of presenters	Ordinary people, celebrities, animation, professionals			147	22.1
Professionals	Pharmacists and chefs			19	2.9
Total of presenters				663	100.0

TV, television.

Table 5 shows that the majority of advertisements that carried claims for enhanced well-being and improved performance were for food products (95% and 56%, respectively). Supermarket and pharmacy promotions, on the other hand, carried the majority (47%) of claims for improved health, improved immune function and balanced nutrition.

Six of the advertisements included information regarding the company's web address. These advertisements were for supermarkets and pharmacies, breakfast cereals, energy drinks, infant formula and dairy products. Twenty-five per cent of supermarket and pharmacy advertisements endorsed best offers, including Easter holiday specials.

Table 6 shows that out of 663 different advertisements the majority (63%) were presented using ordinary people such as adult men and women, children and the whole family. Twenty-two per cent were presented using a mixture of personalities (i.e. celebrities, professionals such as pharmacists and chefs, as well as ordinary people). Ten per cent of advertisements (alcohol advertisements, in particular) were presented using celebrities only (i.e. actors, sportsmen and TV personalities). The rest of the advertisements used professionals only and popular cartoon characters. For instance, all of the McDonald's children's meal advertisements promised a free toy if one buys a meal. Some examples of the free toys were in the form of popular

cartoon characters such as 'Hello Kitty', or TV characters such as 'Transformers', or 'RoboCop' based on the science fiction action films.

Discussion

In the current study we recorded a total of 665 advertisements for food, slimming, multivitamin products, alcohol and supermarket/pharmaceutical promotions that were shown on the non-pay SABC television channels 1, 2, 3 and e-TV over a period of 4 weeks. This is a conservative number of advertisements. The SABC allows at least 10–12 min of advertising each hour⁽¹⁸⁾. According to previous TV advertising records⁽¹⁹⁾ this allows at least six to ten food-related advertisements per hour. This adds up to 1344 advertisements over a period of 4 weeks. The explanation for the low number that we recorded is that at the time of the study the bulk of the TV time (airtime) was dedicated to political parties campaigning for the local elections held in May 2011.

The channels targeted by most SA advertisers were SABC 2 and 3, which are channels viewed by the majority of middle-class South Africans who are also ethnically diverse⁽¹⁷⁾. Moreover, the appearance of nearly 50% of food advertisements during child and family viewing time



and the fact that the most shown advertisements are for desserts and sweets, fast foods and sweetened drinks are a cause for concern. There is strong evidence that suggests TV advertising to be the most powerful medium that encourages the consumption of high-energy food products and beverages^(3,12), increases meal frequency⁽³⁾, promotes fast-food restaurant use⁽¹²⁾ and lowers the consumption of fruit and vegetables⁽¹⁰⁾. Previous South African research has suggested that parents believe that TV viewing does affect their children's nutritional choices as children tend to prefer unhealthy foods, such as snack foods⁽⁸⁾. This therefore makes it less likely that the children will eat nutritious meals.

The strategies used by advertisers in the South African TV media are similar to those seen in other countries^(4,20) in that they include persuasive appeals that target more than one sensory mode, namely vision and auditory modes. In the current study the advertisers used a mixture of personalities, such as celebrities, ordinary people, professionals and cartoon characters, to advertise food-related products. The majority of advertisements that used celebrities, such as popular and attractive TV presenters, soap opera actors and sportsmen, were shown during the children and family viewing times. Reinhard *et al.*⁽²¹⁾ found attractive and popular male and female salespersons to induce more positive attitudes and stronger intentions of consumers to purchase a product compared with unattractive salespersons. Moreover, Ülger⁽²²⁾ found that both children and adults appreciate seeing age-appropriate celebrities on TV as they trust and respect them. International studies also suggest that celebrities appearing in advertising enhance a product's worth and increase sales because they heighten attention to advertisements by virtue of the visual and aural cues associated with celebrity endorsement and the celebrities' fame extends to the product/brand they are endorsing^(23,24).

Of concern is that South African celebrities are used in advertisements directed at promoting alcoholic beverages, even during children and family viewing times (15.00–19.00 hours). According to the ASA's code on alcohol⁽²⁵⁾, alcohol advertisements may not be shown between 14.00 and 17.00 hours on Monday to Friday or before noon on Saturday and Sunday. They may not be directed at persons under the age of 18 years. Moreover, commercial communication may not employ images or icons that have unique appeal to children. In the current study, although advertisements on alcohol had the fine print 'not suitable for persons under the age of 18 years', they also emphasised fun, sophistication, flexibility, peer status and championship, and contravened the ASA⁽²⁵⁾ code.

In the current study popular cartoon characters were also used to endorse sweets such as yoghurt lollipops, sugar-added cereals as well as sugar-concentrated beverages, such as Coke[®] and Fanta[®] from the Coca-Cola Company. Brand recognition is thought to be enhanced in young children when cartoon-related characters

are used in advertising or on packaging⁽²⁶⁾. Moreover, children who recognise characters, logos and slogans from advertisements have been shown to be more likely to select those products and brands when they see them⁽²⁷⁾. Advertisements for desserts, sweets and sugar-concentrated beverages in the current study also contained depictions of exaggerated pleasure sensations and dependency or addiction: for instance, advertisements for sugar-concentrated beverages (Coke and Fanta from the Coca-Cola Company, in particular) depicted lovely taste, fun and addiction sensations by adolescent endorsers. It is significant that the TV slogan for the South African flavoured water (Aquelle) is 'taste it, crave it'.

Explicit health claims by advertisers are also rife, with the most common claims on South African TV being for food products such as starchy foods, infant formula and fat spreads. Some of these advertisements comply with the health claim in that they mentioned the actual component (vitamin or mineral) that brings about the health benefit. However, some of the health claims were somewhat exaggerated. These claims suggested that the whole product brings about the health benefit, such that, if the user consumes these products, the user rapidly becomes smarter and gets a surge of mental/brain power, resulting in a sudden flow of bright ideas. Moreover, more than half of the advertisements that had health claims promised enhancement of well-being. This is misleading as well-being is a broad area that involves the balance of mental, social and physical being⁽²⁸⁾.

Marketing techniques (such as premium offers) or other attributes of advertising (such as the use of web addresses) have previously been identified in TV food advertising⁽²⁹⁾. Such endorsements have been shown to increase recall rates for marketing communications as well as positively impacting upon consumers' attitudes towards the brand. Similarly, in the current study, best offers including Easter holiday specials were emphasised by supermarkets and pharmacies who also specified the usefulness of their Smart Card that rewards points when used to purchase the advertised food-related products at the local stores. Moreover, including reference to a company's web address was used to encourage consumers learn more about other products and offers. Lastly, in the current study it was observed that all of the McDonald's meal advertisements included a reference to a free toy, which is one of the features that make McDonald's advertisements and products so successful internationally⁽³⁰⁾.

Conclusion

TV food-related advertisements in South Africa continue to promote less healthful food products. Misleading health claims are rife. Only a handful of advertisements shown are for food with a high nutrient content, such as vegetables, fruit and low-fat milk and milk products.





This persistence of advertisements for less healthful products is a cause for concern. The findings reported here are broadly similar to the only other study available of food advertising on South African TV⁽¹³⁾. That study reported that on SABC 1 and 2 advertising of foods of poor nutritional value to children was prevalent, with less than 50% of advertisements on good foods. Taken as a whole, the findings of the present study and the previous one⁽¹³⁾ suggest that government intervention is needed to reduce the advertising of unhealthy food-related products, especially to children. At the same time, efforts could be made to encourage more advertising of healthy foods. There is good reason to believe that such steps would modestly improve the national diet and might therefore help combat the obesity epidemic⁽³¹⁾.

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References

1. Lobstein T, Baur L & Uauy R (2004) Obesity in children and young people: a crisis in public health. *Obes Rev* **5**, Suppl. 1, 4–85.
2. Labadarios D, Swart R, Maunder EMW *et al.* (2008) Executive summary of the National Food Consumption Survey Fortification Baseline (NFCS-FB-I) SA, 2005. *South Afr J Clin Nutr* **21**, Suppl. 2, 247–300.
3. Guran T & Bekeret A (2011) International epidemic of childhood obesity and television viewing. *Minerva Pediatr* **63**, 483–490.
4. Dijkstra M, Heidi EJJM, Buijtelts W *et al.* (2005) Separate and joint effects of medium type on consumer responses: a comparison of television, print and the internet. *J Bus Res* **58**, 377–386.

5. Andreyeva T, Kelly IR & Harris JL (2011) Exposure to food advertising on television: association with children's fast food and soft drink consumption and obesity. *Econ Hum Biol* **9**, 221–233.
6. Zimmerman FJ & Bell JF (2010) Association of television content type and obesity in children. *Am J Public Health* **100**, 334–340.
7. Halford JCG, Gillespie J, Brown V *et al.* (2004) Effect of television advertisements for foods on food consumption in children. *Appetite* **42**, 221–225.
8. Da Fonseca (2010) South African parents' perception of television food advertising directed at children. Masters in Business Administration Mini-Dissertation, North West University, Potchefstroom Campus.
9. Advertising Standards Authority of South Africa (2011) Appendix J – food and beverage code. http://www.asasa.org.za/Default.aspx?mnu_id=114 (accessed May 2012).
10. Coon KA & Tucker KL (2002) Television and children's consumption patterns. A review of the literature. *Miner Pediatr* **54**, 423–436.
11. Goris JM, Petersen S, Stamatakis E *et al.* (2010) Television food advertising and the prevalence of childhood overweight and obesity: a multicountry comparison. *Public Health Nutr* **13**, 1003–1012.
12. Guran T, Turan S, Akcay T *et al.* (2010) Content analysis of food advertising in Turkish television. *J Paediatr Child Health* **46**, 427–430.
13. Temple NJ, Steyn NP & Ndamane Z (2008) Food advertisements on children's programs on TV in South Africa. *Nutrition* **24**, 781–782.
14. Consumer Goods Council of South Africa (2012) Welcome to the South African Food Safety Initiative. <http://www.foodsafetyinitiative.co.za/fsi.aspx> (accessed February 2013).
15. Gibney M & Vorster H (editors) (2001) South African Food-Based Dietary Guidelines. *South Afr J Clin Nutr* **14**, Suppl., S1–S80.
16. South African Broadcasting Corporation (2011) Audience Segmentation – TV. <http://www.sabc.co.za/wps/portal/SABC/SABCBIZINFO> (accessed April 2012).
17. South African Broadcasting Corporation (2012/2013) South African Television Channels: ECHO Productions – radio and television advertising. <http://www.echoads.co.za/index.php/articles/59-south-africas-television-channels-> (accessed February 2013).
18. The Future of Media – in association with the South African Broadcasting Corporation (2013) The Annual 2012/2013: advertising media, marketing and branding. <http://www.theredzone.co.za/resources/the-annual> (accessed February 2013).
19. Echo Productions (2012) Radio and TV advertising: South African Television channels. <http://www.echoads.co.za/index.php/articles/65-advantages-of-television-advertising> (accessed February 2013).
20. Lear KE, Runyan RC & Whitaker WH (2009) Sports celebrity endorsements in retail products advertising. *Int J Retail Distrib Manage* **37**, 308–321.
21. Reinhard MA, Messner M & Sporer SL (2006) Explicit persuasive intent and its impact on success at persuasion – the determining roles of attractiveness and likeableness. *J Consum Psychol* **16**, 249–259.
22. Ülger B (2009) Packages with cartoon trade characters versus advertising: an empirical examination of preschoolers' food preferences. *J Food Prod Mark* **15**, 104–117.
23. Erdogan BZ (1999) Celebrity endorsement. A literature review. *J Mark Manage* **15**, 291–314.
24. Gantz W, Schwartz N, Angelini JR *et al.* (2007) *Food for Thought. Television Food Advertising to Children in the United States*. Washington, DC: The Kaiser Family Foundation.



25. Advertising Standards Authority of South Africa (2011) Appendix A – alcohol advertising (ARA). http://www.asasa.org.za/Default.aspx?mnu_id=105 (accessed May 2012).
26. Connor SM (2006) Food-related advertising on preschool television. Building brand recognition in young viewers. *Pediatrics* **118**, 1478–1485.
27. Batada A & Borzekowski DLG (2008) Snap, crackle... what? Recognition of cereal advertisements and understanding of commercials' persuasive intent among low-income, minority, urban youth. *J Child Media* **2**, 19–36.
28. Goldstein JH, Pejchar L & Daily GC (2008) Using return-on-investment to guide restoration: a case study from Hawaii. *Conserv Lett* **1**, 236–243.
29. Hastings G, Stead M, McDermott L *et al.* (2003) *Review of Research on the Effects of Food Promotion to Children. Final Report prepared for the Food Standards Agency*. Glasgow: Centre for Social Marketing, University of Strathclyde.
30. Sahud HB, Binns HJ, Meadow WL *et al.* (2006) Marketing fast food: impact of fast food restaurants in children's hospitals. *Pediatrics* **118**, 2290.
31. Fox RF (1996) *Harvesting Minds: How TV Commercials Control Kids*. Westport, CT: Praeger Publishers.