

BMJ Open A content analysis of outdoor non-alcoholic beverage advertisements in Ghana

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ABSTRACT

Objectives This was a two-part descriptive study designed to (1) assess the marketing themes and sugar content of beverages promoted in outdoor advertisements (ads) within a portion of Accra, Ghana and (2) quantify the types of ads that appeared along the Accra-Cape Coast Highway.

Setting A 4.7 km² area of Accra, Ghana and a 151 km region along the highway represented the target areas for collecting photos of outdoor beverage ads.

Primary and secondary outcome measures Number and types of beverage ads, sugar content of beverage products featured in ads and marketing themes used in ads.

Design Two researchers photographed outdoor beverage ads in a 4.7 km² area of Accra and used content analysis to assess marketing themes of ads, including the portrayal of children, local culture, music, sports and health. Researchers also recorded the number and type of ads along a 151 km stretch of the Accra-Cape Coast Highway. Researchers assessed the added sugar content to determine which beverages were sugar-sweetened beverages (SSBs).

Results Seventy-seven photographed ads were analysed. Seventy-three per cent (72.7%) of ads featured SSBs, and Coca-Cola accounted for 59.7% of ads. Sixty-five per cent (64.9%) of all ads featured sodas, while 35.1% advertised energy drinks, bottled or canned juice drinks and coffee-based, milk-based and water-based beverages. Thirteen per cent (13%) of ads featured children and 5.2% were located near schools or playgrounds. Nine per cent (9.1%) of ads contained a reference to health and 7.8% contained a reference to fitness/strength/sport. Along the Accra-Cape Coast Highway, Coca-Cola accounted for 60% of branded ads.

Conclusion This study demonstrates the frequency of outdoor SSB ads within a 4.7 km² area of Accra, Ghana. Coca-Cola was featured in the majority of ads, and the child-targeted nature of some ads indicates a need to expand the Children's Food and Beverage Advertising Initiative pledge to reduce child-targeted marketing on a global scale.

During the last 20 years, sales of sodas have declined by 25% in the USA, which can be partially attributed to increased public awareness of the health implications of

Strengths and limitations of this study

- ▶ This is the first study, to our knowledge, to use nutritional analyses and qualitative coding to examine the types of beverage ads that appear in a 4.7 km² area of Accra, Ghana.
- ▶ The study applied the methodology of other research that has assessed outdoor ads (eg, capturing ads visible from the street, using similar definitions for ad sizes) in other regions, which strengthens the ability to compare findings across studies.
- ▶ The study area represents only a fraction of Accra's total area; results were assumed to be generally representative of the entire urban region.
- ▶ Beverage ads that were not visible to researchers were not included in the study.

sugar-sweetened beverage (SSB) consumption.¹ This decline has motivated beverage companies to increase promotion and availability of low-calorie and no-calorie options.² In fact, non-SSB ads accounted for 36.3% (\$465 000 000) of all beverage advertising dollars spent in the USA in 2013, reflecting a 17% increase in diet soda advertising expenditures since 2010, despite sagging sales.³ At the same time, beverage companies have increased their presence outside the USA by investing billions in production and sales, demonstrated by Coca-Cola's plans to invest \$5 billion in India by the year 2020 and a total of \$17 billion between 2010 and 2020 in Africa.^{4,5}

Sub-Saharan Africa has experienced increasing rates of diet-related diseases such as obesity, hypertension, heart disease and stroke in recent years.⁶ In West Africa, changes in dietary patterns have been accompanied by a transition from the primary burden of infectious disease to include non-communicable diseases (NCDs).⁷ Previous research has indicated an association between increased consumption of energy-dense, nutrient poor foods and beverages and NCDs in West African populations. Specifically, researchers

have reported increased obesity prevalence in West Africans living in urban compared with rural areas, suggesting a need for public health interventions and public policies to address these largely preventable health risks.^{8,9}

One effort towards preventing NCDs examines how food and beverage marketing contributes to poor diet. Food and beverage marketing in the USA is ubiquitous, with ads appearing on billboards, television, the internet, social media sites, in movies and in schools.¹⁰ Studies show that food and beverage marketing influences children to prefer and request advertised products.¹⁰ Further, exposure to ads that promote high-calorie products influence children to consume excess calories.¹⁰ Exposure to food ads also leads to excess consumption in adults.¹¹ A number of studies have also demonstrated that outdoor tobacco ads have been associated with increased smoking rates and tobacco brand recognition among youth.¹²⁻¹⁴ One study conducted in Ghana suggested that consumers are more likely to patronise beverage brands that are heavily advertised and particularly those that use celebrities as brand ambassadors.¹⁵

To understand the developing presence and extent of beverage advertising in Accra, the capital city of Ghana, this descriptive study aimed to (1) assess the marketing themes used in outdoor beverage ads in a 4.7 km² area of Accra, Ghana, (2) examine the sugar content of products promoted in those ads and (3) quantify the number and type of ads that appeared along a 151 km stretch of the Accra-Cape Coast Highway.

METHODS

For the first stage of the study, three researchers developed a qualitative codebook based on common marketing themes that have been reported in the previous research.^{16,17} The 14-item codebook was based on a content analysis codebook previously developed by Bragg *et al* for a qualitative analysis of food marketing themes and addressed factors such as the type of SSB reference (eg, small sign, large billboard, front-of-store promotional display), the presence of a professional sports organisation logo, professional sports team, sports equipment or environment, child-oriented features (eg, use of a child model or childlike character (even in the presence of an adult), the words 'child' or 'kid' or placement next to a school or playground), health-related text (eg, balanced, natural, diet or low-calorie) or fitness-related text (eg, fuel, energy or strength), music references (eg, microphones, a musician celebrity), promotions and cultural relevance (eg, Ghanaian sports teams, Ghana's flag, the presence of African models or celebrities). We defined billboards as large signs with dimensions greater than 0.61 × 0.91 meter and front-of-store displays as small signs with dimensions less than 21.59 × 27.94 centimeters. These dimensions reflect measurements used in other outdoor ad studies.^{18,19}

After developing the codebook, two researchers divided Accra into 5 km² regions and chose one site at random to

capture a snapshot of urban marketing practices. Larger areas were not feasible for the two researchers to capture given the time-intensive nature of the task. After selecting the data collection site, the researchers took photographs of any non-alcoholic beverage ads that appeared alongside two-lane roads in that region. The exact area was ultimately 4.7 km². The rationale for capturing ads that were visible from the street was that such ads would be likely to allow for maximal consumer exposure, in sight of both pedestrians and drivers in the area. Thus, these ads were situated in a way that would have been likely to have a greater impact on potential consumers than more discreet ads. Although these methods were used for a small region for this study, the focus on outdoor ads and nutritional quality is similar to the methodology used in the largest and most comprehensive published study on outdoor ads, which assessed food/beverage, tobacco, alcohol and sedentary behaviour-promotion ads that were visible from the street or sidewalk in several zip codes within four large US cities.²⁰ Similar techniques have been used in other outdoor ad studies.^{21,22}

Accra is 65 total square miles (168 km²),²³ but the random sample of photographs was captured in East Legon between the University of Ghana and the Kotoka International Airport. Any reference to multinational or local non-alcoholic beverage companies was photographed, including signs and items that featured products or brand logos (eg, panels on the exteriors of small stores).

For the purpose of qualitative analysis, intercoder reliability was assessed by coding a randomised 10% of the 77 photographs, with standard reliability set at a Krippendorff's alpha value of at least 0.70 or per cent agreement value of 90%. The remaining 90% of the photos were then coded, after which frequency analyses were performed in SPSS V.23.0 to determine the percentage of ads that were related to items in the codebook. The items of particular focus included classification as an SSB or non-SSB and the presence of child-targeted marketing, cultural relevance and health or fitness references, featuring three major food and beverage companies—Coca-Cola, Pepsi and Nestle—and all other brands. These classifications were not assigned as mutually exclusive, such that one ad could be applicable to more than one classification (eg, an ad could demonstrate cultural relevance and also contain a health reference). Adequate nutritional information was not available for the following brands featured in the data set: Nido, Vaettel, Nestle Ideal, American Cola, Bel-Aqua, Kalypso, Fandango and an additional unidentified brand.

A second stage of the study involved tracking the number and type of all beverage ads present on the Accra-Cape Coast Highway, the 151 km highway that serves as the primary road for commuters travelling to and from Accra to the coast of Ghana. The highway was selected as an area of study because it is the longest stretch of highway leading into Accra (ie, a prime location to target consumers with ads).

**Table 1** Descriptive and quantitative data for outdoor non-alcoholic beverage ads†‡^{1 2}

Category	Coca-Cola	Pepsi	Nestle	Other brands	Total
SSB*	59.7% (n=46)	3.9% (n=3)	9.1% (n=7)	0.0% (n=0)	72.7% (n=56)
Child targeted	2.6% (n=2)	1.3% (n=1)	3.9% (n=3)	2.6% (n=2)	10.4% (n=8)
Cultural relevance	26.0% (n=20)	0.0% (n=0)	19.5% (n=15)	1.3% (n=1)	46.8% (n=36)
Health reference	0.0% (n=0)	0.0% (n=0)	3.9% (n=3)	5.2% (n=4)	9.1% (n=7)
Fitness reference	0.0% (n=0)	0.0% (n=0)	6.5% (n=5)	1.3% (n=1)	7.8% (n=6)
Total	59.7% (n=46)	3.9% (n=3)	22.1% (n=17)	14.3% (n=11)	100% (n=77)

*Sugar-sweetened beverages (SSBs) were classified by the presence of high fructose corn syrup or added sugar in publicly available ingredient lists.

†The brand and product in 2 of the 77 photos could not be identified clearly.

‡One ad promoted Fanta and two promoted Sprite, but both were SSBs owned by the Coca-Cola Company.

RESULTS

The results of the first stage of the study are based on a content analysis of 77 photos (n=77) taken in an area of Accra, Ghana.

Sugar content of products featured in outdoor beverage ads

Of the 77 photos of outdoor non-alcoholic beverage ads that were captured, 72.7% (n=56) featured SSBs. Coca-Cola brands (eg, Fanta, Sprite) were featured in 59.7% (n=46) of all non-alcoholic beverage ads photographed, while the Pepsi brand was featured in 3.9% of all ads (n=3) and Nestle brands (eg, Milo, Nescafe) were found in 22.1% (n=17) of all ads (table 1). None of the Nestle brands promoted infant formula, and none of the Coca-Cola or Pepsi ads promoted a low-calorie or no-calorie beverage. Sixty-five per cent (64.9%) of all ads promoted sodas, while the remaining 35.1% advertised energy drinks (n=1), bottled or canned juice drinks (n=3) and coffee-based (n=3), milk-based (n=15) and water-based (n=5) beverages. Forty-seven per cent (46.8%) of all photographs contained two or more SSB references.

Marketing themes associated with outdoor beverage ads

Nearly half (46.8%) of all non-alcoholic beverage ads used an aspect of relevance to local culture, including Ghanaian flags, Ghanaian sports or Ghanaian people. Almost half of all ads (46.8%) featured a person or character, in which 33.8% featured a person that appeared to be 18 years of age or older and 13.0% featured a person or character that appeared to be a child. In 36.4% of all ads, at least one person or character was holding the beverage product. Nine percent (9.1%) of all ads contained at least one word similar to 'healthy' and 7.8% contained at least one word that conveyed 'fitness/ strength/ sport'. Five percent (5.2%) of ads were located directly next to something that is easily identified as child oriented (eg, an elementary school). Finally, 28.6% of ads conveyed SSB references through small signs, while 20.8% of ads conveyed SSB references through billboards, front-of-store displays or branded storage units. Thirty per cent (29.9%) of ads featured

branding references located where SSB products were also available for purchase (eg, vendor cart with ad above it).

Number of advertisement types along Accra-Cape Coast Highway

For the second portion of the study involving ads along the Accra-Cape Coast Highway, 60% (n=21) of all outdoor ads that featured a beverage logo (without an actual beverage) were associated with Coca-Cola, 20% (n=7) were associated with Pepsi and 20% (n=7) were associated with Nestle (table 2). In ads where an actual beverage was shown, the majority were local fruit and vegetable drink ads (64.3%; n=36), while the second-most frequent ads seen were local SSBs (19.6%; n=11) (table 3).

Table 2 Number of ads along Accra-Cape Coast Highway by company logo

Geographical area	Coca-Cola	Pepsi	Nestle
Cape Coast	2	1	3
Moree	0	0	0
Yamoransa	0	0	0
Biriwa	0	0	0
Anomabo	0	0	0
Kormanste	0	0	0
Saltpond	2	1	0
Mankessim	2	0	0
Ekumfi	0	0	0
Gamoa	0	1	1
Apam	0	0	0
Winneba	2	0	0
Gomoall	6	0	0
Liberian Camp	1	0	0
Accra	6	4	3
Total	21	7	7
Total %	60.0	20.0	20.0

**Table 3** Number of ads along Accra-Cape Coast Highway by type of beverage

Geographical area	Local SSBs	Water brands	Local fruit/veg drink	Milk brands
Cape Coast	1	1	0	2
Moree	0	1	1	0
Yamoransa	0	0	0	0
Biriwa	0	0	0	0
Anomabo	3	0	0	1
Kormanste	0	0	0	0
Saltpond	0	0	0	0
Mankessim	0	0	0	0
Ekumfi	0	0	2	0
Gamoia	2	0	0	2
Apam	0	0	2	1
Winneba	0	0	1	0
Gomoall	0	0	9	0
Liberian Camp	0	0	16	0
Accra	5	1	5	0
Total	11	3	36	6
Total	19.6%	5.4%	64.3%	10.7%

DISCUSSION

Results demonstrate the use of a variety of beverage marketing techniques in a 4.7km² area of Accra, Ghana. The majority of SSB ads captured in the study were associated with Coca-Cola, followed distantly by Nestle and Pepsi, which is consistent with reports of Coca-Cola increasing their investment in sales in Africa.^{6 7} Culturally relevant advertising of SSB products was notably prevalent in beverage ads, with nearly half (46.8%) of the ads having an aspect of relevance to local culture. While culturally targeted advertising can be considered a public health asset if it promotes healthy behaviours (eg, encouraging health-care screenings), previous research shows that culturally targeted ads heavily promote unhealthy products (eg, unhealthy foods and beverages, alcohol and tobacco) to Black and Latino communities in the USA, which is especially problematic given the disproportionately high rates of chronic diseases in those populations.²⁴ Furthermore, one study showed that low-income communities have a higher prevalence of food and beverage ads, regardless of the race/ethnicity of the local population,²⁵ suggesting the need for comprehensive policies in low-income areas. The WHO recommends comprehensive policies aimed to prevent chronic diseases including national policies that restrict marketing of foods and beverages high in saturated fat, trans fat, sugar and salt imported and exported to other countries.^{26 27} More recently, Chile enacted a comprehensive advertising restriction that will prohibit advertisements of food products to minors younger than 14 years.²⁸ Implementation of such policies may further reduce the prevalence of chronic disease among children.

Thirteen per cent of ads were child targeted, and all of them were associated with Nestle's brand Milo. None of the child-targeted ads were associated with Pepsi or Coca-Cola, with the exception of the Coca-Cola school sign. Their 'Responsible Marketing' web page states that the brand will not design marketing communications in a way that directly appeals to children under 12 years, but also that 'where Coca-Cola has contributed to school construction, the company name will be stated simply to indicate funding support for construction and not for the purposes of advertising'.²⁹ Although our study only revealed 13% of ads to contain child-targeted marketing, which is lower than child-targeted advertising rates in other studies that have assessed this feature of packaged goods (eg, 29% on sugary drink packages³⁰; 34% on sports-related foods and beverages, such as cereals and sports drinks¹⁶), the rates are similar to the only published study on outdoor child-targeted ads, which found 20% of fast food restaurants had child-targeted food ads outside or inside the restaurants. Inside fast food restaurants, kids' meal toys displays were the most prevalent ad type, while ads with cartoon characters and kids' meal displays were most prevalent on the exterior of fast food restaurants. Further, child-targeted ads were used most frequently in fast food restaurants chain located in neighbourhoods where the majority of residents were black.³¹ Indeed, most studies on child-targeted marketing examine youth exposure to television ads³²⁻³⁶ or child-targeted websites.^{37 38} Other studies on outdoor advertising conducted in the USA, Europe and Australia have not assessed child-targeted materials.^{20-22 38-40} However, several studies have discussed the impact of outdoor smoking advertisements on adults' smoking behaviour, which showed that higher exposure to outdoor tobacco ads was associated with higher smoking rates.¹³ Importantly, the companies associated with child-targeted marketing in our sample have upheld their pledge to refrain from marketing unhealthy beverages to children under 12 years.⁴¹ However, the fact that Nestle USA has committed to that pledge, but Nestle Global has not, suggests why the child-targeted Nestle ads in this sample were not in violation of the CFBAI pledge (ie, they presumably fall under Nestle Global). Strikingly, Coca-Cola's logo and company name were featured on an elementary school sign, and the proximity of the brand logo to schoolchildren suggests that construction-related branding should also be incorporated into their CFBAI pledge. Finally, 9.1% of ads contained a reference to health and 7.8% contained a reference to fitness/strength/sport, which may send mixed messages about the healthfulness of these beverage products.

One positive finding included the lack of ads for infant formula, which has been shown to impede exclusive breastfeeding, the optimal nutrition source for infants and young children. This advertisement's absence may reflect that Ghana's advertising code is strong and well enforced.⁴² Indeed, international formula advertising guidelines, such as those proposed in Ghana, Cambodia,



Nepal, Senegal and Tanzania, should serve as models for policies designed to reduce SSB marketing practices.

This two-part study has several limitations. The data collection region was a small, 4.7km² area of Accra, meaning the results cannot be generalised to the larger city or Ghana overall. Additionally, although the data collection region was selected randomly, it was not selected based on residents' demographic characteristics, which limits our ability to draw conclusions about how ads might appear in different neighbourhoods. Similarly, beverage ads were photographed along roadways, meaning the researchers missed ads that appeared farther from the road. However, the use of ads that were visible from the street reflects previously published methods on outdoor advertising.^{20–22} Furthermore, because it is likely the ads were placed in heavily trafficked areas (eg, roadways), this limitation may not greatly underestimate the analysis of ads in the area. Finally, because this was a descriptive study that makes no causal assumptions, its impact on policy choice and implementation is likely very limited. Rather, the findings contribute to the literature on outdoor advertising because this is the first study, to our knowledge, to assess outdoor beverage ads in an area of Accra, Ghana. The findings suggest a need for further monitoring of outdoor advertising in these areas.

Overall, these findings suggest that SSBs are the primary beverage product promoted in a 4.7km² area of Accra, Ghana. The limited promotion of low-calorie or no-calorie beverages suggests that sales of soda in Accra may rely on sugary beverages, which are associated with obesity, diabetes and tooth decay. Though some ads appeared next to schools, it was a small percentage, and we were not able to determine whether the company placed the ads there intentionally or by chance. Coca-Cola was featured in the majority of ads, and the child-targeted nature and placement of some Nestle ads suggests they should extend their child-targeted marketing pledges to include reducing ads outside of the USA. The findings point to the need for further monitoring of outdoor advertising in Ghana and suggest that initiating similar data collection in other regions of West Africa could be important, particularly if these advertising patterns are consistent across the region.

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Contributor MAB originated the idea for the manuscript and reviewed relevant literature on the topic. TH assisted with data collection and analysis and helped with the development of the manuscript. NGP assisted with data analysis and development of the manuscript. YRR provided critical feedback on drafts of the manuscript and assisted in framing the issues. GO provided critical feedback on drafts of the manuscript and assisted in framing the issues.

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