

Child-Directed Marketing Inside and on the Exterior of Fast Food Restaurants

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Background: Children who eat fast food have poor diet and health outcomes. Fast food is heavily marketed to youth, and exposure to such marketing is associated with higher fast food consumption.

Purpose: To examine the extent of child-directed marketing (CDM) inside and on the exterior of fast food restaurants.

Methods: Data were collected from 6,716 fast food restaurants located in a nationally representative sample of public middle- and high-school enrollment areas in 2010, 2011, and 2012. CDM was defined as the presence of one or more of seven components inside or on the exterior of the restaurant. Analyses were conducted in 2014.

Results: More than 20% of fast food restaurants used CDM inside or on their exterior. In multivariate analyses, fast food restaurants that were part of a chain, offered kids' meals, were located in middle- (compared to high)-income neighborhoods, and in rural (compared to urban) areas had significantly higher odds of using any CDM; chain restaurants and those located in majority black neighborhoods (compared to white) had significantly higher odds of having an indoor display of kids' meal toys. Compared to 2010, there was a significant decline in use of CDM in 2011, but the prevalence increased close to the 2010 level in 2012.

Conclusions: CDM inside and on the exterior of fast food restaurants is prevalent in chain restaurants; majority black communities, rural areas, and middle-income communities are disproportionately exposed. The fast food industry should limit children's exposure to marketing that promotes unhealthy food choices.

(Am J Prev Med 2015;48(1):22–30) © 2015 American Journal of Preventive Medicine

Introduction

In the U.S., fast food is the second largest source of total energy in the diets of children and adolescents, providing 13% of total calories consumed by 2–18-year-olds.¹ On a typical day, almost a third of children aged 2–11 years and 41% of 12–19-year-olds consume food and beverages from fast food restaurants.² Children who consume fast food are likely to consume more total calories, total fat, saturated fat, sodium, sugar, and sugar-sweetened beverages

and are less likely to meet dietary recommendations for fruits, vegetables, and dairy.^{3–8} Fast food consumption is also associated with poor health outcomes among adolescents, including higher body fat percentage, metabolic risk, and higher insulin levels—all markers of potential chronic diseases⁹—and increased risk of obesity during adulthood.¹⁰ Exposure to fast food marketing is associated with higher fast food consumption among children,¹¹ increasing their risk of poor diet and health outcomes.

Fast food is heavily marketed to children and youth, constituting 24% of the food industry's total expenditures on marketing directed to U.S. youth aged 2–17 years.¹² Based on a review of industry expenditures from 48 major food companies, including ten fast food restaurant chains, the Federal Trade Commission (FTC) estimated that fast food restaurants spent \$714 million to market their products to children and adolescents in 2009.¹² Although down from the numbers reported by FTC for 2006, the biggest category of expenditure and almost half of the total dollars incurred by the fast food industry for child-directed

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0749-3797/\$36.00

<http://dx.doi.org/10.1016/j.amepre.2014.08.011>

marketing (CDM) continue to be for premiums such as toys offered with kids' meals (promoted to children, usually aged 12 years and younger). In 2009, the fast food industry spent \$342 million for such premiums, defined as non-food specialty items distributed to promote a company's food products. Research has shown that fast food companies often emphasize toys and other giveaways rather than food to market their products to children.¹³

In 2006, several major U.S. food and beverage companies, including two fast food chains, McDonald's and Burger King, created the Children's Food and Beverage Advertising Initiative (CFBAI) to limit CDM to healthier foods and beverages.¹⁴ The National Restaurant Association launched the Kids LiveWell program in 2011 to help restaurants offer and promote healthy menu items for children.¹⁵ Despite these self-regulatory efforts, the vast majority of foods advertised to children on TV are for unhealthy, energy-dense, nutrient-poor foods,^{16–20} the majority of fast food products targeted toward children and adolescents (kids' meals and dollar menu items) are of poor nutritional quality,^{18,21} and the nutrient content of kids' meals does not align with dietary recommendations^{18,22} or with the Kids LiveWell nutritional criteria.²³ Further, children and adolescents from lower-income and racial minority groups, who experience higher rates of overweight, obesity, and diet-related chronic diseases, are targeted by selective placement of advertisements on TV programs and in geographic and retail settings.^{24–27}

Although a number of studies have examined CDM by fast food restaurants in a variety of media such as TV, the Internet, and mobile media,^{18,13} the extent of such marketing inside and on the exterior of fast food restaurants has not been assessed. Assessing CDM in these venues is critical so that changes can be monitored as marketing in other locations becomes restricted, and to ensure that future industry and public policy initiatives address CDM inside and on the exterior of restaurants. This paper examines the extent of CDM inside and on the exterior of fast food restaurants in a national sample of communities around middle and high schools, assesses how this type of marketing varied over time (between 2010 and 2012), and how CDM differs across different types of neighborhoods based on their income, racial/ethnic, and urbanicity profiles. Given the extensive use of toy premiums by industry, this analysis also examines the extent and variation in the use of indoor displays of kids' meal toys.

Methods

Sample

The analytic sample included data collected from 6,716 fast food restaurants between 2010 and 2012 as part of the Bridging the Gap Community Obesity Measures Project (BTG-COMP): 2,166

restaurants in 2010, 2,302 restaurants in 2011, and 2,248 restaurants in 2012 from 139, 147, and 148 communities, respectively. Fast food restaurants located in a nationally representative sample of 434 communities where public school students (8th, 10th, and 12th grade, traditional) live across 46 states were sampled for the study.²⁸ A community was defined as the enrollment area for a public middle or high school. Public schools used as the basis for defining the communities were drawn from the Monitoring the Future (MTF) study, an annual survey of health-related behaviors among eighth-, tenth-, and 12th-graders. The MTF study follows a multistage random sampling procedure with stratification by region, school, and students to obtain a representative sample of students throughout the coterminous U.S. A detailed description of the MTF sampling procedure is available elsewhere.²⁹

In order to select the sample of fast food restaurants, listings were obtained from two commercial sources: InfoUSA and Dun and Bradstreet. Data from these two sources were compared, combined, and de-duplicated to create one comprehensive list. A telephone screening protocol was implemented to confirm the existence of each business on the list and its business type (e.g., fast food restaurant versus full-service restaurant). In addition, research staff "discovered" fast food restaurants in the field that were not included in the two commercial lists. These discoveries were made as the data collectors drove the streets of the school catchment areas to observe all sampled venues included in the overall study. In addition, field staff members were instructed to drive all arterial (commercial) streets in the catchment area to "discover" additional fast food restaurants. The sampling methodology used for selecting fast food restaurants from each of the communities relied on the "half-open interval" approach.^{30–32} Briefly, this approach reduces the non-coverage error often associated with commercial data sources by producing two samples for each community, one derived from the existing commercial data sources and one based on "discovery" of fast food restaurants in the field. A full description of the data collection procedure for the BTG-COMP study can be found in Barker et al. (2014).²⁸

Measures

An observation form, the BTG Fast Food Observation Form (BTG-FFOF), was used by data collectors trained by the research team using a standardized protocol to measure characteristics of the fast food restaurant environment, including product availability, price, and promotion.³³ The presented analyses were limited to available measures of CDM inside and on the exterior of the fast food restaurant. CDM inside the restaurants included the indoor play area and an indoor display of kids' meal toys. CDM on the exterior included advertisements with cartoon characters; advertisements with movie, TV, or sports figures; advertisements of kids' meal toys; exterior play area; and other CDM such as three-dimensional cartoon characters or advertisements for hosting children's birthday parties, all posted on the exterior of the restaurants and visible from the parking lot or street.

Presence of each type of CDM was coded as a 0 (for not present) or 1 (for present). A composite variable was created to capture the presence of any type of CDM inside or on the exterior of the fast food restaurant where the presence of one or more types of CDM was coded as 1 (or 0 otherwise). The inter-rater reliability for the included items ranged between 0.55 and 1.³³ The items with lower

inter-rater reliability were modified based on feedback from data collectors from the reliability testing runs before finalizing the observation form used for nationwide data collection.

Community-specific data were obtained using the 5-year estimates from the American Community Survey (2007–2011) at the block group level and included median household income, percentage of residents who self-identified as Hispanic or non-Hispanic, and percentage of residents who self-identified as black, white, or other races. Neighborhood income was defined as median household income in quartiles across the communities. Neighborhood ethnicity was defined as majority Hispanic ($\geq 50\%$) or non-Hispanic ($\geq 50\%$), and neighborhood race was defined as majority white ($\geq 50\%$); majority black ($\geq 50\%$); or mixed (neither white nor black $\geq 50\%$). Urbanicity of the neighborhood was defined based on the New Urban-Centric Locale Codes obtained from the National Center for Education Statistics and were further grouped into three categories, urban, suburban, and rural, based on distance to an urban/metropolitan area.

Restaurants that were part of the top 400 chains based on system-wide sales³⁴ were grouped into the chain restaurant category, with remaining classified as non-chain. Restaurants were also categorized by whether or not they offered kids' meals.

Analysis

After exploring the data using descriptive statistics, multivariate logistic regression models were estimated where presence of any CDM and kids' meal toy displays were used as the dependent variables, and store- and community-level demographic and socioeconomic factors and year of data collection were used as explanatory variables. All analyses were conducted using complex survey design procedures in Stata, version 12, adjusting for clustering at the community level. Sampling weights were used to account for the probability of selection of communities (catchment areas of schools in the MTF sample) and stores within each community. All analyses were considered statistically significant at $p < 0.05$. Analyses were conducted in 2014.

Results

Table 1 shows descriptive statistics for the fast food restaurants included in the sample. Nearly 60% of the restaurants belonged to a chain and an equal number offered kids' meals. The majority of restaurants were located in non-Hispanic and majority white neighborhoods. Overall, one fifth of restaurants used any CDM, with the indoor display for kids' meal toys being the most popular strategy used by far (13.0%), followed by exterior advertisements with cartoon characters (5.2%) and exterior advertisements for kids' meal toys (5.0%) (Figure 1).

Overall, 31.4% of all chain restaurants used any CDM inside or on their exterior, and 20.8% had an indoor display of kids' meal toys (Table 1). The prevalence of any CDM in chain restaurants declined significantly

Table 1. Descriptive statistics of fast food restaurants included in the sample over 3 years of data collection ($n=6,716$)

Characteristics	%
Chain status	
Non-chain restaurants	40.6
Chain restaurants	59.4
Offers kids' meal	
Yes	58.4
No	41.6
Median household income in neighborhood	
High	36.1
Near-high	24.3
Near-low	24.4
Low	15.3
Neighborhood ethnicity	
Non-Hispanic	92.5
Hispanic	7.5
Neighborhood race (majority)	
White	90.0
Black	3.3
Mixed	6.6
Urbanicity of neighborhood	
Urban	41.2
Suburban	44.9
Rural	13.9
Child-directed marketing^a	
All sample	20.2
Chain restaurants	31.4
Non-chain restaurants	3.8
Indoor kids' meal toys display	
All sample	13.0
Chain restaurants	20.8
Non-chain restaurants	1.4

^aChild-directed marketing was defined as the presence of one or more of seven components inside or on the exterior of the restaurant. Child-directed marketing on the exterior of the premises included advertisements with cartoon characters; advertisements with movie, TV, or sports figures; advertisements of kids' meal toys; exterior play area; and other child-directed marketing such as three-dimensional cartoon characters or advertisements for hosting children's birthday parties. Child-directed marketing inside the restaurant included indoor play area and indoor display of kids' meal toys.

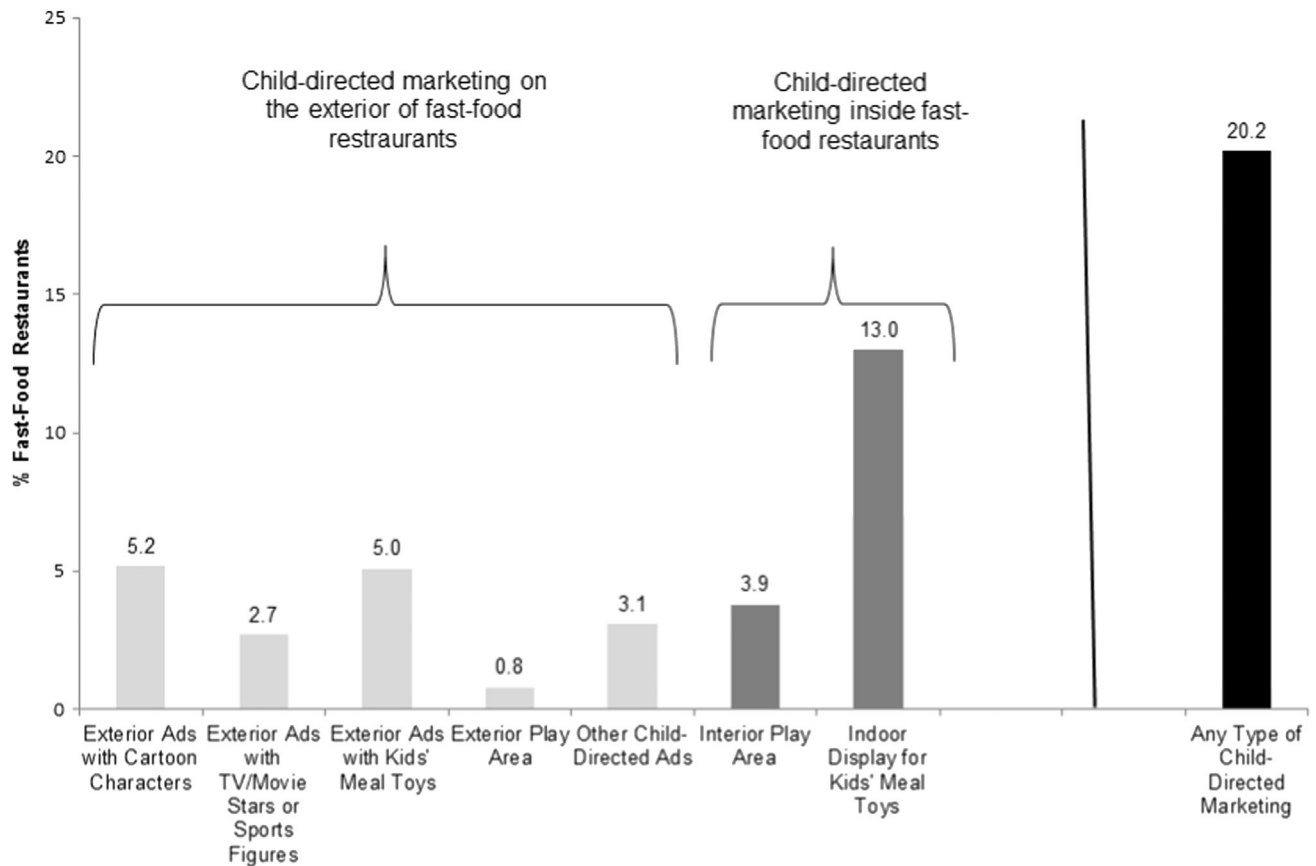


Figure 1. Prevalence of various forms of child-directed marketing inside and on the exterior of fast food restaurants.

from 34.9% to 27.4% between 2010 and 2011 and then increased significantly to 32.6% in 2012; prevalence of indoor display of kids' meal toys did not significantly change during this time (Figure 2).

Table 2 shows the results of multivariate logistic regressions examining factors associated with the presence of any CDM among fast food restaurants in the full sample and in a sample restricted by whether the restaurant offered kids' meals. In the full sample ($N=6,716$), chain status of the restaurant and whether they offered kids' meals were significantly associated with higher odds of using any CDM. Restaurants in middle-income (near high- and near low-income) neighborhoods had significantly higher odds of using any CDM than restaurants in high-income neighborhoods, and those in rural communities had significantly higher odds compared to urban neighborhoods. Restaurants in majority black neighborhoods had higher odds of using any CDM and approached significance. Compared to 2010, there was a significant drop in the use of any CDM in 2011; however, there was no difference in use of any CDM between 2010 and 2012. Examining the associations for indoor and exterior CDM separately yielded similar results.

Because more than three quarters of the chain restaurants offered kids' meals compared to a third of the non-chain restaurants, further analyses were conducted by restricting the sample based on whether the restaurant offered kids' meals (Table 2). In this sample, significant associations were observed between use of any CDM and chain status of the restaurant and restaurants' location in rural areas. In addition, being located in near low-income neighborhoods and black communities were marginally significantly associated with increased odds of any CDM. A significant drop in the prevalence of CDM was observed in 2011 and 2012 compared to 2010. Chain restaurants also had significantly greater odds of using any CDM when the sample was restricted to those that did not offer kids' meals; having restaurant locations in low- and middle-income communities was significantly associated with higher odds of using any CDM.

Further, the presence of indoor display of kids' meal toys was examined in fast food restaurants that offered kids' meals (Table 3). In this sample, chain restaurants had nine times greater odds of having a kids' meal toy display compared to non-chain restaurants, and restaurants in majority black neighborhoods had almost two times the odds of displaying kids' meal toys compared to

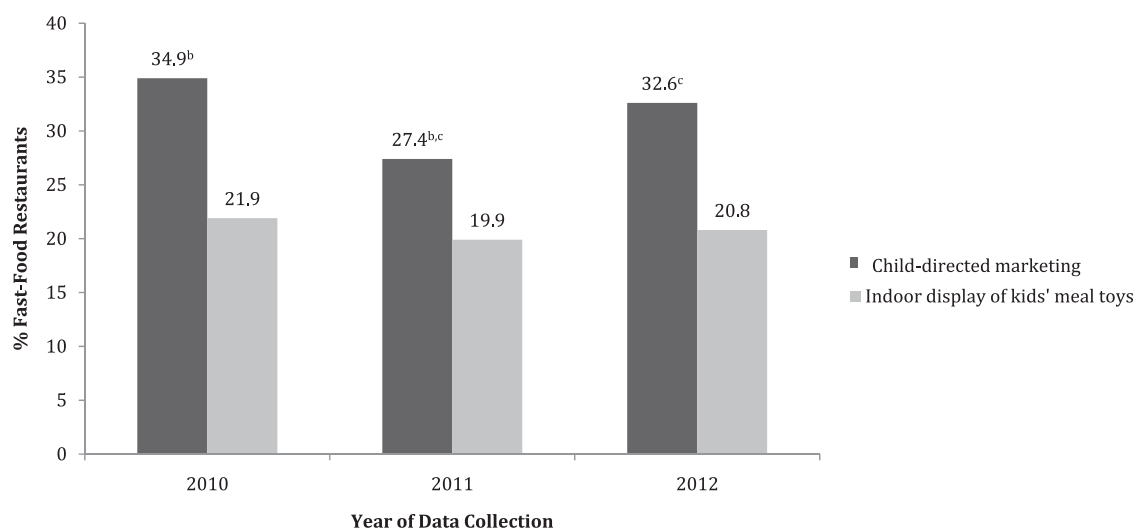


Figure 2. Prevalence of any child-directed marketing (CDM)^a inside and on the exterior and prevalence of indoor display for kids' meal toys in chain fast food restaurants over time.

^aChild-directed marketing was defined as the presence of one or more of seven components inside or on the exterior of the restaurant. Child-directed marketing on the exterior of the premises included advertisements with cartoon characters; advertisements with movie, TV, or sports figures; advertisements of kids' meal toys; exterior play area; and other child-directed marketing such as three-dimensional cartoon characters or advertisements for hosting children's birthday parties. Child-directed marketing inside the restaurant included indoor play area and indoor display of kids' meal toys. Significant differences are marked with the same superscript letters.

those in white neighborhoods; both of these differences were statistically significant. Although the prevalence of display of kids' meal toys fell between 2010 and 2011, no significant change was observed between 2010 and 2012.

Discussion

The findings from this study indicate that CDM is employed frequently inside and on the exterior by chain fast food restaurants, and its use is significantly more prevalent in disadvantaged communities. Chain fast food restaurants are more likely to use CDM irrespective of whether they offer kids' meals or not. Although the use of any CDM is more prevalent in rural and middle-income areas overall, restaurants in black neighborhoods are much more likely to have displays of kids' meal toys. In 2012, the last year for which data were collected, almost one third of fast food chain restaurants used CDM to market to children. Food marketing to children is problematic not only because it affects their current consumption but also because it affects their tastes and preferences³⁵ and can influence future brand loyalty.^{36,37}

Fast food consumption has been consistently associated with negative dietary and health outcomes, especially among vulnerable segments of the population such as children and adolescents,^{8,38} and exposure to fast food advertising is associated with higher consumption among children.¹¹ Despite industry efforts to implement

improvements in their offerings,^{14,15} research shows that kids' meals continue to be of low nutritional quality.^{18,39} In a recent analysis, less than 1% of kids' meal combinations met recommended nutrition standards and 3% met the industry's own (CFBAI and Kids LiveWell) standards.^{18,23}

The use of kids' meal toy displays by about a fifth of the chain fast food restaurants sampled each year shows that it is an attractive strategy for marketing to children. Further, fast food advertising on TV targeted to children often emphasizes toy giveaways.¹³ Almost 66% of the CFBAI chain restaurants had an indoor display for the kids' meal toys; this prevalence did not change significantly over the course of 3 years of data collection (data not shown).

The FTC report¹² found that industry expenditures on toy premiums had dropped between 2006 and 2009. The reduction in FTC-reported expenditures on premiums could be related to lower cost of toys, the possibility that the cost of the toys are borne by other companies whose products are being cross promoted, and to less frequent distribution of such toys due to non-kids' meal fast food purchases by children.⁴⁰

Overall, between 2010 and 2012, the period during which the current study was conducted, according to a recent report, major fast food companies increased their overall advertising spending by 8%; although CDM on TV declined during this period, marketing to youth on websites and social media grew significantly.⁴¹ Further,

Table 2. Logistic regression analysis of association between presence of any child-directed marketing^a and restaurant characteristics, OR (95% CI)

	Any child-directed marketing (all restaurants) (n=6,716)	Any child-directed marketing (restaurants offering kids' meals) (n=3,630)	Any child-directed marketing (restaurants not offering kids' meals) (n=3,086)
Chain status			
Non-chain fast food restaurants	ref	ref	ref
Chain fast food restaurants	6.29*** (4.51, 8.79)	7.39*** (5.01, 10.9)	3.62*** (1.84, 7.14)
Offers kids' meal	8.80*** (5.73, 13.50)		
Median household income in neighborhood			
High	ref	ref	ref
Near-high	1.28** (1.02, 1.60)	1.19 (0.93, 1.52)	2.96*** (1.55, 5.63)
Near-low	1.34** (1.06, 1.68)	1.21* (0.97, 1.51)	3.69*** (1.54, 8.85)
Low	1.04 (0.77, 1.39)	0.95 (0.69, 1.30)	2.54*** (1.30, 4.94)
Neighborhood ethnicity			
Non-Hispanic	ref	ref	ref
Hispanic	0.97 (0.68, 1.38)	1.05 (0.74, 1.49)	0.43 (0.15, 1.21)
Neighborhood race (majority)			
White	ref	ref	ref
Black	1.67* (0.92, 3.03)	1.68* (0.94, 3.02)	1.38 (0.48, 4.01)
Mixed	1.03 (0.76, 1.40)	1.01 (0.74, 1.39)	1.12 (0.53, 2.38)
Urbanicity of neighborhood			
Urban	ref	ref	ref
Suburban	1.03 (0.85, 1.25)	1.08 (0.88, 1.32)	0.75 (0.39, 1.45)
Rural	1.40** (1.07, 1.83)	1.52*** (1.15, 2.02)	0.62 (0.27, 1.43)
Year			
2010	ref	ref	ref
2011	0.64*** (0.52, 0.78)	0.60*** (0.49, 0.75)	0.90 (0.51, 1.59)
2012	0.83 (0.66, 1.06)	0.76** (0.60, 0.97)	1.58 (0.71, 3.52)

Note: Boldface indicates significance.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

^aChild-directed marketing was defined as the presence of one or more of seven components inside or on the exterior of the restaurant. Child-directed marketing on the exterior of the premises included advertisements with cartoon characters; advertisements with movie, TV, or sports figures; advertisements of kids' meal toys; exterior play area; and other child-directed marketing such as three-dimensional cartoon characters or advertisements for hosting children's birthday parties. Child-directed marketing inside the restaurant included indoor play area and indoor display of kids' meal toys.

research studies published with data from this period have documented continued poor nutritional quality of menu offerings at fast food restaurants in general, and specifically for kid's meals.^{18,23,39,42}

The extensive use of CDM in near low-income, majority black, and rural communities is of serious

concern because these communities are disproportionately affected by poor health and diet outcomes.^{25,43,44} The study finds that fast food restaurants located in middle- compared to high-income communities and in rural compared to urban communities have significantly greater odds of using any CDM.

Table 3. Logistic regression analysis of association between presence of kids' meal toy displays and restaurant characteristics, OR (95% CI)

Kids' meal toy display (restaurants offering kids' meals) (n=3,630)	
Chain status	
Non-chain fast food restaurants	ref
Chain fast food restaurants	8.99*** (5.12, 15.80)
Median household income in neighborhood	
High	ref
Near-high	1.27 (0.94, 1.72)
Near-low	1.21 (0.89, 1.65)
Low	1.21 (0.85, 1.71)
Neighborhood ethnicity	
Non-Hispanic	ref
Hispanic	0.96 (0.63, 1.47)
Neighborhood race (majority)	
White	ref
Black	1.66** (1.04, 2.67)
Mixed	1.19 (0.80, 1.78)
Urbanicity of neighborhood	
Urban	ref
Suburban	1.09 (0.84, 1.41)
Rural	1.32 (0.94, 1.85)
Year	
2010	ref
2011	0.74** (0.56, 0.99)
2012	0.80 (0.60, 1.07)

Note: Boldface indicates significance.

** $p < 0.05$; *** $p < 0.01$.

Further, restaurants in black neighborhoods disproportionately use kids' meal toy displays as a strategy to market to children. Previous research has shown that fast food companies target young people living in lower-income communities and communities of color using price promotion and advertisements, and that lower-income and minority children are more likely to be targeted by food advertising, particularly for foods of lower nutritional value including fast food.^{25,26,45}

The IOM report *Accelerating Progress in Obesity Prevention*⁴⁶ emphasized the urgent need for the food, beverage, restaurant, and media industries to only market

foods to children aged 2–17 years that support a diet consistent with the Dietary Guidelines for Americans. In 2012, both Burger King and McDonald's updated their CFBAI pledges to follow new uniform nutrition criteria, but the criteria are weaker than those proposed by the Interagency Work Group.⁴⁷ Burger King agreed to expand its pledge to some in-restaurant promotions, but McDonald's restated pledge does not include these strategies.¹⁴

Encouraging CFBAI members to strengthen their uniform nutrition criteria and expand the current CFBAI agreements to consistently include guidelines for CDM inside and on the exterior of fast food restaurants would help to limit children's exposure to unhealthy food marketing. Other effective strategies should be explored to discourage fast food restaurants from targeting children already at higher risk for poor diet and health outcomes.

There are several strengths to this study. The data for this study are drawn from a national sample with findings generalizable to communities surrounding public middle and high schools across the U.S. The results are based on 3 consecutive years of data, allowing for assessment of recent changes over time. Finally, CDM is captured using multiple constructs using a validated instrument.

Nonetheless, a key weakness of the study is that nutritional analysis of specific foods advertised or offered through the restaurants is not feasible. Other studies have consistently shown that foods marketed to children tend to be of poor nutritional quality.^{18,23} Overall, the study presents important findings and makes a case for continued monitoring of the extent of CDM at fast food restaurants that no doubt attempts to build brand loyalty and shape long-run consumption patterns.

Conclusions

CDM inside and on the exterior of fast food restaurants is prevalent in chain restaurants. Majority black communities, rural areas, and middle-income communities are disproportionately exposed to CDM and specifically to indoor displays of kids' meals toys, a popular strategy among chain restaurants. In light of these findings, it is important to urge the fast food industry to limit children's exposure to marketing that promotes consumption of unhealthy food choices.

This work was supported by a grant from the Robert Wood Johnson Foundation to the Bridging the Gap program at University of Illinois at Chicago. The sponsor had no role in study design, collection, analysis, and interpretation of data; writing the report, or the decision to submit this paper for publication.

No financial disclosures were reported by the authors of this paper.

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