Effect of the Exposure to TV Food Advertisements on the Consumption of Foods by Mothers and Children

*Glenda Díaz-Ramírez, †Arturo Jiménez-Cruz, *Maria de las Cruces Souto-Gallardo, and †Montserrat Bacardí-Gascón

ABSTRACT

Foods advertised were recorded in 2 television (TV) channels. The present article studies the association between products advertised and those consumed by mothers and children. A total of 365 mothers and their children were assessed. A positive correlation was observed between the food advertisements that the mothers recalled and the frequency of TV food advertisements (Rho = 0.44, $P = 0.03$). A positive correlation was found between the frequency of the foods advertised on TV and the consumption of these by the mothers ($r = 0.73$, $P = 0.0001$) and their children (Rho = 0.66, $P = 0.0001$). These results suggest that TV advertisements influence the food choices of mothers and children.

Key Words: food advertisements, Mexican children, Mexican mothers, television

(*JPGN* 2013;56: 86–88)

Television (TV) viewing has 3 main influences: promoting a sedentary lifestyle; promoting an unhealthy diet, in consequence of advertising of foods with sweeteners, high in saturated fats and rich in trans fatty acids, including ''fast food,'' high-energy snacks, candies, and sodas; and children having a tendency to consume high-energy foods and products with a poor nutritional value more frequently when they are watching TV than when engaged in other activities (1–4). One systematic review suggested that exposure to food advertisements influences the acquisition, purchase, and consumption of these products by children and adults (5).

The objective of the present study was to evaluate the frequency with which food advertisements are aired during adult programming of 2 Mexican TV public broadcast channels, and to assess the association between the foods advertised and the ones consumed by mothers and their children.

METHODS

Recording of TV Advertisements

The recording included the 2 most popular national public broadcast channels and took place during 2 weeks in April and May of 2011. Recordings were conducted Monday through Friday, during the periods of highest viewing (17:00 to 22:00 hours). The nutritional composition of the advertised foods was evaluated based on the food labels provided by the food industry. They were then classified as either healthy or unhealthy according to the Mexican Health Bureau (6) and the Norm on the Traffic Light Color for the labeling of foods in the United Kingdom (Food Standards Agency 2007 (7).

Subjects and Procedures

Mothers of children 8 months to 5 years old, who gave consent, were interviewed at a vaccination center in Tijuana, Mexico. The study was approved by the bioethics committee of the Medical and Psychology School from the Universidad Autónoma de Baja California. A questionnaire of demographic data was administered to the mothers. Direct interview was conducted to explore the type of foods consumed by the mothers and their children. The amount of time that the mothers were exposed to TV programming was registered, along with a food frequency consumption of foods advertised on TV.

Statistical Analysis

The Spearman correlation was used to assess the association between the frequency of foods advertised on TV and the foods consumed by the mother and child. The association between the number of hours of TV watching, the level of education, the mother's weekly income, and the number of advertisements they recalled was assessed using the Spearman correlation. To identify the difference in the number of hours of TV watching among different levels of education and weekly income, a 1-way analysis of variance was used. The association between the consumption of healthy and unhealthy foods, advertised on TV, with the mother's education level and weekly income was measured with the χ^2 test.

RESULTS

A total of 105 hours of TV programming were recorded, registering a total of 5249 advertisements. Twenty-five percent (1318) of these advertisements corresponded to foods. An average of 5 to 7 advertisements was transmitted for every 30 minutes of programming. Sixty-seven percent of the foods advertised were unhealthy, 25%, 34%, and 42% with high content of fat, sugar, and sodium, respectively.

A total of 365 mothers were interviewed. An association was observed between the food advertisements that the mothers recalled and the frequency of TV food advertisements (rho = 0.44, $P = 0.03$). The food advertisements recalled the most frequently by mothers were juices (24%), sweetened drinks (15%), and sweetened cereals (11%). Mothers with the lowest levels of education watched

Received March 20, 2012; accepted June 7, 2012.

From the *Universidad Autónoma de Baja California, and the †Medical and Psychology School, Universidad Autónoma de Baja California Tijuana, Mexico.

Address correspondence and reprint requests to Arturo Jiménez-Cruz, Calzada Universidad no. 14418, Parque Industrial Internacional, CP 22390, Tijuana BC, México (e-mail: Montserrat.bacardi@uabc.edu.mx).

The authors report no conflict of interest.

DOI: 10.1097/MPG.0b013e3182638d13

more TV hour per week ($P = 0.03$). The foods advertised that were consumed more frequently by the mothers were seasonings (85%), carbonated drinks (79%), liquid milk (78%), sandwich bread (73%), and cookies (73%). A correlation was found between the frequency of the foods advertised on TV and the consumption of these by the mothers ($r = 0.73$, $P = 0.0001$).

Seventy-five percent of children watched TV. Children younger than 1 year of age watched an average of 2.3 ± 2.9 hours/day; 1 to 3 years old 2.5 ± 1.8 hours/day; and >3 years old 1.9 ± 1.7 hours/day. Twenty-five percent of the foods advertised were introduced in the diet of children before they reached 6 months of age. The type of foods advertised on TV that were purchased the most by mothers and consumed by their children were sweetened fresh cheese (45%), juices (40%), cookies (30%), purees (27%), yogurt (27%), and sweetened cereals (22%). Only 2% purchased fruit. The foods that children consumed more frequently were cookies (89%), sweetened fresh cheese (84%), potato chips (79%), sweetened and carbonated drinks (70%), and flavoring powders for water (66%). A correlation was found between the frequency of the foods advertised on TV and the consumption of these by children ($r = 0.66$, $P = 0.0001$). Healthy and unhealthy foods advertised on TV, and their consumption by mothers and their children were not associated with the mother's education level and weekly income.

DISCUSSION

The present study found 5 to 7 food advertisements for every 30 minutes of scheduling in the 2 most popular channels during the highest audience. The foods that were advertised the most included sweetened cereals, sweetened and carbonated drinks, and snacks. In the present study, a majority of the foods advertised on TV were observed to be unhealthy (67%) (6,7), especially because of their high levels of fat (25%), sugar (34%), and the moderate to high levels of sodium (42%). Exposure to advertising of unhealthy foods in Mexico during 2011 was similar to that in the United States in 1992 (8); however, in 2006, a reduction in the number of TV advertisements of foods high in fat was observed in the UK and Canada (9). Therefore, in Mexico, the exposure to unhealthy food advertising on TV is currently higher than that observed in Canada, the United Kingdom, and the United States (8,9).

Recently, various studies have focused on the exposure to TV advertisements targeting children (10–13). One study conducted in Mexico reported 4 food advertisements for every 30 minutes of programming, 2 targeting children specifically (10). A study conducted in 13 countries reported that children were also exposed to high levels of food advertisements on TV, and most of them were of unhealthy foods (67%) (11), which is consistent with the results found in the present study. Such findings have led different countries and organizations to implement trade policies on advertising foods (12,13). Although these measures have also been implemented in Mexico, the results of the present study indicate their poor effectiveness.

In the present study the mothers described having bought several foods advertised on TV for their children, such as juices, cookies, purees, and sweetened cereals, whereas only 2% of mothers mentioned buying fruits. This suggests that TV advertisements have an effect on the purchasing patterns of unhealthy foods intended for the household. The results are also consistent with those found in Venezuela 25 years ago (14). Experimental studies have observed the influence that advertisements have on the purchase and consumption of foods (5,15). Robinson et al observed that food branding influenced preference for a given good item among children who demonstrate a preference for foods of specific brands (16).

The present study observed that 99% of the mothers watched TV for 3.5 ± 1.7 hours/day, and that the women with lower education levels watched more TV ($P = 0.03$). It has been shown that watching TV promotes a sedentary lifestyle and thus increases the risk for obesity (2,3). The time spent watching TV was associated with a higher consumption of drinks during this period, which could be an additional mechanism by which exposure to TV may increase the risk of being overweight and obese (2,3). The present study found a positive correlation between the frequency of exposure to food advertisements and the number of food advertisements that the mothers recalled (rho = 0.44, $P = 0.03$), consistent with other studies (17).

The limitations of the present study include the following: energy value was not estimated; the inherent limitations of a questionnaire on the frequency of food consumption by children provided by the mothers; the recordings were done on only 2 national public broadcasting channels; the results cannot necessarily be generalized because responders visiting the center studied may not be representative of the general population; and recall bias regarding time spent watching TV and content of advertisements.

To our knowledge, this is the first study in Mexico that describes a positive association between the exposure to food advertisements in adult programming and the purchase and consumption patterns by mothers and their children on the foods advertised. The results suggest that exposure to advertisements of ''unhealthy'' foods may influence the food choices of mothers and children. In a country like Mexico, with an elevated prevalence of childhood obesity, measures to restrict advertisements of foods contributing to the risk of obesity are urgently needed.

REFERENCES

1. Lowry R, Wechsler H, Galuska DA, et al. Television viewing and its associations with overweight, sedentary lifestyle, and insufficient consumption of fruits and vegetables among US high school students: differences by race, ethnicity, and gender. *J Sch Health* 2002;72:413–21.
2. Robinson TN. Television viewing and childhood obesity. *Pediatr Clin North Am* 2001;48:1017–25.
3. Pérez-Escamilla R, Damio G, Himmelgreen D, et al. Translating knowledge into community nutrition programs: lessons learned from the Connecticut Family Nutrition Program for Infants, Toddlers, and Children. *Recent Res Dev Nutr* 2002;5:69–89.
4. Powell LM, Szczypka G, Chaloupka FJ, et al. Nutritional content of television food advertisements seen by children and adolescents in the United States. *Pediatrics* 2007;120:576–83.
5. Díaz-Ramírez G, Souto-Gallardo MC, Bacardí-Gascón M, et al. Effect of food television advertising on the preference and food consumption: systematic review. *Nutr Hosp* 2011;26:1250–5.
6. Acuerdo Nacional para la Salud Alimentaria, Estrategia contra el Sobrepeso y la Obesidad. *http://www.sep.gob.mx/work/models/sep1/Resource/635/1/images/acuerdo_lin.pdf*. Accessed May 25, 2010.
7. Food Standards Agency's, Front of Pack Traffic Light Signpost Labelling—Technical Guidance, Issue 2, Page 4 of 16. *http://www.food.gov.uk/multimedia/pdfs/frontofpackguidance2.pdf*. Published November 2007. Accessed April 22, 2010.
8. Lank NH, Vickery CE, Cotugna N, et al. Food commercials during television soap operas: what is the nutrition message? *J Community Health* 1992;17:377–84.
9. Adams J, Hennessy-Priest K, Ingimarsdóttir S, et al. Changes in food advertisements during 'prime-time' television from 1991 to 2006 in the UK and Canada. *Br J Nutr* 2009;102:584–93.
10. Ramírez-Ley K, De Lira-García C, Souto-Gallardo MC, et al. Food-related advertising geared toward Mexican children. *J Public Health (Oxf)* 2009;31:383–8.

11. Kelly B, Kelly B, Halford JC, et al. Television food advertising to children a global perspective. *Am J Public Health* 2010;100:1730–6.
12. Organización Mundial de la Salud 2010. Conjunto de recomendaciones sobre la promoción de alimentos y bebidas no alcohólicas dirigida a los niños. *http://www.padec.org.ar/afiche.org.salud.pdf*. Accessed April 1, 2011.
13. Hawkes C, Lobstein T. Regulating the commercial promotion of food to children: a survey of actions worldwide. *Int J Pediatr Obes* 2011;6:83–94.
14. Moya de Sifontes MZ, Dehollain PL. Effect of mass communication media in food purchasing at the family level. *Arch Latinoam Nutr* 1986;36:166–86.
15. Brody GH, Stoneman Z, Lane TS, et al. Television food commercials aimed at children, family grocery shopping, and mother-child interactions. *Family Relations* 1981;30:435–9.
16. Robinson TN, Borzekowski DL, Matheson DM, et al. Effects of fast food branding on young children's taste preferences. *Arch Pediatr Adolesc Med* 2007;161:792–7.
17. Martin CK, Coulon SM, Markward N, et al. Association between energy intake and viewing television, distractibility, and memory for advertisements. *Am J Clin Nutr* 2009;89:37–44.