



Diet Quality of Items Advertised in Supermarket Sales Circulars Compared to Diets of the US Population, as Assessed by the Healthy Eating Index-2010



Lisa Jahns, PhD, RD; Angela J. Scheett, MPH, RD; LuAnn K. Johnson, MS; Susan M. Krebs-Smith, PhD, MPH; Collin R. Payne, PhD; Leah D. Whigham, PhD; Bonita S. Hoverson, RD; Sibylle Kranz, PhD, RD

ARTICLE INFORMATION

Article history:

Submitted 22 May 2015
Accepted 17 September 2015
Available online 22 October 2015

Keywords:

Diet quality
Healthy Eating Index
Supermarkets
Weekly sales circulars
Food environment

Supplementary materials:

Table 2 is available at www.andjrn.org

2212-2672/Copyright © 2016 by the Academy of Nutrition and Dietetics.

<http://dx.doi.org/10.1016/j.jand.2015.09.016>

ABSTRACT

Background Supermarkets use sales circulars to highlight specific foods, usually at reduced prices. Resulting purchases help form the set of available foods within households from which individuals and families make choices about what to eat.

Objective The purposes of this study were to determine how closely foods featured in weekly supermarket sales circulars conform to dietary guidance and how diet quality compares with that of the US population's intakes.

Design Food and beverage items (n=9,149) in 52 weekly sales circulars from a small Midwestern grocery chain in 2009 were coded to obtain food group and nutrient and energy content. Healthy Eating Index-2010 (HEI-2010) total and component scores were calculated using algorithms developed by the National Cancer Institute. HEI-2010 scores for the US population aged 2+ years were estimated using data from the 2009-2010 National Health and Nutrition Examination Survey. HEI-2010 scores of circulars and population intakes were compared using Student's *t* tests.

Results Mean total (42.8 of 100) HEI-2010 scores of circulars were lower than that of the US population (55.4; $P<0.001$). Among individual components, Total Protein Foods was the only one for which 100% of the maximum score was met by both circulars and the population. The scores were also similar between the circulars and population for Whole Grains (22%; $P=0.81$) and Seafood and Plant Proteins (70% to 74%; $P=0.33$). Circular scores were lower than those of the population for Total and Whole Fruits, Total Vegetables and Greens and Beans, Dairy, Sodium, and Empty Calories ($P<0.001$); they were higher only for Fatty Acids ($P=0.006$) and Refined Grains ($P<0.001$).

Conclusions HEI-2010 total scores for these sales circulars were even lower than US population scores, which have been shown repeatedly to reflect low diet quality. Supermarkets could support improvements in consumer diets by weekly featuring foods that are more in concordance with food and nutrient recommendations.

J Acad Nutr Diet. 2016;116:115-122.

A LARGE PERCENTAGE OF THE MEALS THAT AMERICANS consume are prepared away from home, but the majority of their energy intake is derived from foods at home,¹ and Americans' grocery purchases score low in diet quality.² Food purchases are driven in large part by the food environment, one level of which is the retail level, including corner stores, supercenter-type stores, and supermarkets (grocery stores). In the United States, supermarkets use a broad mixture of methods to increase sales. Variety and placement of items, pricing, and promotion are

all designed to nudge consumers to purchase certain food categories.^{3,4} Supermarkets are often targets of nutrition interventions to increase healthier or decrease unhealthier food purchases. Many interventions occur at the point-of-purchase level, where food selection occurs, using price discounts, education, in store demonstrations, and manipulation of placement and availability of foods, and have been extensively reviewed.⁵⁻⁹ However, the influence of intervening on the planning stage of grocery shopping trips has generally not been addressed. One understudied method of marketing and potential intervention level is weekly sales circulars, which communicate price and highlight sale items to consumers. Sales circulars are widely read both in print and online and influence purchasing decisions.¹⁰⁻¹⁴ As they shape food purchases by focusing consumer attention on specific foods, circulars have the potential to impact food purchases

To take the Continuing Professional Education quiz for this article, log in to www.eatrightPRO.org, go to the My Account section of the My Academy Toolbar, click the "Access Quiz" link, click "Journal Article Quiz" on the next page, and then click the "Additional Journal CPE quizzes" button to view a list of available quizzes.

and subsequent food intake.¹⁵ Recent studies report that supermarket sales circular contents are discordant with the US MyPlate¹⁶ nutrition education icon.^{17,18} Given the potential of supermarket marketing strategies to affect food purchasing and eating behavior in either positive or negative ways, an examination of the nutritional quality of items advertised in weekly newspaper sales circulars can provide direction for nutrition interventions partnering with supermarkets.

The Healthy Eating Index (HEI)-2005 and subsequent HEI-2010 were developed by the National Cancer Institute and the US Department of Agriculture (USDA) for the purpose of measuring how well a set of foods conforms to federal dietary guidance.¹⁹⁻²² The HEI-2010 reflects the recommendations of the Dietary Guidelines for Americans 2010 as implemented by the USDA Food Patterns.²³⁻²⁵ The HEI has been used to measure the food environment on various levels, such as the US food supply,²⁶⁻²⁸ federal food assistance programs,²⁹ and restaurants.^{27,30} The diet quality of individual food choices, including grocery purchases² and dietary intake,^{31,32} have also been assessed using the HEI. Because the index uses a universal set of standards and is calculated using a density approach, it can measure the diet quality of any mix of foods. This means it can be applied across levels of the food supply chain and, regardless of the level, the scores are comparable.

This report expands upon previous research describing the content of supermarket sales circulars¹⁷ by quantifying the diet quality of the items promoted using the HEI-2010 scoring system. The purposes of this study were to determine how closely the contents of 1 years' worth of weekly supermarket sales circulars from a small Midwestern supermarket chain conformed to current dietary guidance as measured by the HEI-2010, and to compare the HEI-2010 scores of the circulars to those of the diets of the US population.

METHODS

Coding of Sales Circulars

Fifty-two weekly supermarket sales circulars dating from January 1 to December 31, 2009, were collected from a Grand Forks, ND, supermarket chain. Approximately 100,000 circulars are either delivered in the Sunday edition of the local newspaper or are available in store each week. For this study, circulars were obtained from newspapers, stores, and store archives. Each food item in the weekly circulars was dual-coded by trained research personnel to assure data entry reliability; discrepancies were resolved by a supervisory research registered dietitian nutritionist. Nonfood items were excluded, and alcoholic beverages were not included as the chain did not sell or advertise alcohol for the entire year. Of the 9,245 food and beverage items listed in the weekly circulars, 9,149 (99.0%) were coded by a registered dietitian nutritionist using the Food and Nutrient Database for Dietary Studies (FNDDS), version 5.0 (2012).³³ Nutrient values for FNDDS 5.0 are based on values in USDA National Nutrient Database for Standard Reference, Release 24 (SR24, 2011).³⁴ Excluded items included spices such as taco seasonings that did not have a match in FNDDS. Acceptable matches were determined based on item descriptions. Common measure units (eg, ounces and fluid ounces) were determined for each item. When a range of weights was listed in the ad (eg, 12 to 14 oz), the midpoint of the range was recorded. Items sold per pound were entered as 1 lb. The package measure was

multiplied by the quantity per ad price to determine the total measure amount for the item(s) advertised. For example, 12-packs of 12-fl oz cans of soda on sale as three 12-packs for \$9.00; each 12-pack contains 144 fl oz; quantity per ad price is three; total measure amount advertised is 432 fl oz. All common measure units were converted to gram amounts. FNDDS 5.0 was also used to determine calorie, sodium, saturated fat, monounsaturated fat, and polyunsaturated fat content of the advertised items. To estimate amounts of food groups, added sugars, and solid fats in these items, the FNDDS codes were linked to the MyPyramid Equivalents Database 2.0 (2008),³⁵ the Center for Nutrition Policy and Promotion MyPyramid Equivalents Databases for Whole Fruit and Fruit Juices for NHANES 2003-2004³⁶ and the Center for Nutrition Policy and Promotion Addendum to MyPyramid Equivalents Database, 2.0B (2011). The HEI-2010 score was calculated using the relevant FNDDS nutrients and MyPyramid Equivalents Database food groups.

US Population Estimates

This analysis used data from the 2009-2010 Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES) and the USDA/Agricultural Research Service (ARS) What We Eat in America (WWEIA) dietary intake component of NHANES (n=10,537). NHANES is a continuous cross-sectional survey of the civilian, non-institutionalized US population. The survey uses a complex, multistage probability sampling design and sample weights are provided to produce nationally representative estimates. Data are released in 2-year cycles and details may be found elsewhere.^{37,38} WWEIA includes two nonconsecutive, interviewer-administered 24-hour recalls derived using the USDA/ARS Automated Multiple-Pass Method.³⁹ NHANES protocols were approved by the National Center for Health Statistics Ethics Review Board and all participants provided informed consent. Estimates are from day 1 intake data reported by 9,522 individuals aged 2 years and older deemed reliable by the interviewer.

Description of the HEI-2010

The HEI-2010 is composed of 12 food group and nutrient components. Of these, 9 are components for which Americans are at risk of inadequate intake: 1) Total Fruit, 2) Whole Fruit, 3) Total Vegetables, 4) Greens and Beans, 5) Whole Grains, 6) Dairy, 7) Total Protein Foods, 8) Seafood and Plant Proteins, and 9) poly- and monounsaturated Fatty Acids. The remaining three are components that should be consumed in moderation: 10) Refined Grains, 11) Sodium, and 12) Empty Calories (calories from solid fats, added sugars, and alcohol). Depending on the component, scores range from 0 to 5, 10, or 20. All components are scored on a density basis; for all components other than Fatty Acids, amounts are assessed per 1,000 kcal, with Empty Calories reported as a percentage. For instance, to receive the maximum score of 5 for the Total Vegetables component, the group of foods being evaluated must contain at least 1.1 cup equivalents per 1,000 kcal (Table 1). Fatty acids are assessed as the ratio of poly- and monounsaturated to saturated fatty acids. Once each of the 12 component ratios is calculated, scores are assigned and the scores can be summed to derive the total HEI-2010 score,

Download English Version:

<https://daneshyari.com/en/article/2656479>

Download Persian Version:

<https://daneshyari.com/article/2656479>

[Daneshyari.com](https://daneshyari.com)