ADDED SUGAR IN THE CANADIAN FOOD SUPPLY: A DESCRIPTIVE ANALYSIS

Rachel B Acton BSc[1], Lana Vanderlee PhD[1], Erin P Hobin PhD[1,2], David Hammond PhD[1]*

1. School of Public Health and Health Systems, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1
2. Public Health Ontario, Toronto, Ontario, Canada M5G 1V2

* Corresponding Author
LHN 1716
University of Waterloo
200 University Ave W
Waterloo, ON N2L 3G1
david.hammond@uwaterloo.ca
(519) 888-4567 ext. 36462

Contributor's Statement:

RBA participated in designing the study, developing the research questions, conducting the analyses, and writing the initial draft of the document. LV and DH participated in designing the study methods, and developing the research questions. EPH participated in acquiring the data. All authors participated in editing the document, and have read and approved the final document.

Word Count: 2,428

Tables: 2 **Figures:** 0

ABSTRACT

BACKGROUND: Excess consumption of added sugars has been associated with a variety of health problems, but there is little information available characterizing added sugar in the Canadian food supply. This study examined the presence and types of added sugars in the Canadian packaged food supply.

METHODS: Our study analyzed a comprehensive database of food product information from a major national grocery retailer. We searched the ingredients lists of over 40,000 packaged food products available for sale in March 2015 for a variety of added sugar terms. Proportions of food products containing added sugar were identified overall and within food product categories. Differences in total sugar content were identified between food products with and without added sugar.

RESULTS: Overall, 66% of the packaged food products analyzed contained at least one added sugar. The added sugar term 'sugar' (and its variations) appeared the most frequently, followed by 'dextrose'. Added sugar presence and total sugar content varied within many product categories, but were consistently higher in expected categories such as 'Beverages'. Mean total sugar content was significantly higher in products with added sugar than in those without, both overall ($p<0.0001$) and within most product subcategories ($p<0.01$).

INTERPRETATION: Approximately two thirds of the current Canadian packaged food supply contains added sugar, similar to recent patterns estimated for the US food supply. This study provides a baseline characterization of added sugar in the Canadian food supply, which can be used to assess outcomes of future changes to sugar labeling policies in Canada.

INTRODUCTION

Added sugar has emerged as an important public health issue. The term "added sugar" generally refers to sugars (or ingredients that functionally substitute for sugars) that are added to foods and beverages during preparation or processing, unlike intrinsic sugars that are found within the structure of intact fruits and vegetables, or sugars naturally occurring in milk.[1,2] Higher intakes of added sugars threaten the nutrient quality of diets by replacing essential nutrients and increasing the overall energy density of diets.[3] There is a growing body of evidence indicating that excess added sugar consumption is associated with a variety of health problems, including heart disease,[4,5,6] stroke,[6] obesity,[7,8,9,10,11] diabetes,[12,13,14,15,16] high blood cholesterol,[17,18] cancer,[19] and dental caries.[20] The World Health Organization recommends reducing intake of free sugars to below 10% of total energy intake, and to less than 5% for additional health benefits.[21] Similarly, the Heart and Stroke Foundation of Canada recommends individuals to limit their consumption of added sugars to a maximum of 10% of total daily calorie intake, as do the 2015-2020 Dietary Guidelines for Americans in the United States.[22,23]

An increasing proportion of the food supply is categorized as processed and packaged foods,[24] which tend to be high in added sugars.[25] Worldwide, daily per capita consumption of caloric sweetener (a term which excludes sugars added from fruit juice) increased by 74 calories from 1962 to 2000.[26] Limited data are available on Canadians' added sugar consumption, but it has been estimated to fall between 11 and 13% of total energy intake.[27,28] To date, there is little information about the levels of added sugar content in the food supply in general. A recent study by Popkin and Hawkes examined added sugar in the US, and found that 68% of packaged food and beverages purchased in 2013 contained added sugars, after excluding low-calorie sweeteners.[29] To our knowledge, there are currently no estimates of the added sugar levels in the Canadian food supply. The primary objective of the current study was to examine the presence and types of added sugars in the Canadian food supply through an analysis of a comprehensive database of food product information from a major national grocery retailer in Canada. In particular, the study sought to estimate the proportion of packaged food products with added sugar both overall and by food category, identify the frequency of different types of added sugars, and identify differences in total sugar content between food products with and without added sugar.

METHODS

Design

The study analysed a comprehensive database containing food product information of over 60,000 items available for sale in March 2015 across all banner stores of a major national grocery retailer. The data provided UPC information, food product categories, product descriptions, Nutrition Facts table information, and the ingredients lists of each food product. For the purposes of this study, only packaged foods were included in the analysis. Products identified as fresh fruits or vegetables, fresh meat, raw ingredients (water, baking ingredients, coffee and tea, fats and oils, etc.), or non-food items (natural health products, nutrition and protein supplements, etc.) were excluded. After exclusions, 40,829 packaged food products were analyzed in the current study.

To assess the comprehensiveness of the set of food products included in this database, we compared the UPCs of the 40,829 products to supermarket transaction data recorded in the period of March 1 to 15, 2015. Over 150 million sales transactions were recorded in the retailers' stores across Canada over this two-week period, and included 60,563 unique UPCs. The results of this comparison indicated that 58% of the products analyzed in this paper were sold in the first two weeks of March. Of the 42% of products not sold in the first two weeks of March, most were likely to be seasonal or infrequently sold food items. The March sales transaction data also included 26,711 UPC codes that were not among the 40,829 food products analyzed in this paper. The majority of these were non-food items (51%) or discontinued products (9%). The remaining were products for which nutritional information had not yet been provided (37%).

Measures

The 40,829 food products were sorted into 10 categories (Milk and Dairy; Protein Foods; Mixed Dishes; Grains; Baked Goods; Snacks and Sweets; Beverages; Condiments, Sauces and Spreads; Infant Formula and Baby Food; Fruits and Vegetables) and 30 subcategories, as seen in Table 1. These categories were adapted from those used in the What We Eat in America dietary intake component of the National Health and Nutrition Examination Survey (NHANES).[30]

There is varying terminology used to describe sugars in the literature.[31] Traditionally, the term "added sugars" refers to all sugars added to foods, including honey and syrups, but does not necessarily include fruit juices.[31] The World Health Organization has adopted the term "free sugars" with the intention of creating a more precise definition, and define it as "all monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and fruit

juices".[32] The World Health Organization's definition for free sugars was used to identify added sugars in the current study. We searched for 30 different added sugar terms in the ingredients lists of the food products: agave, malt/barley malt, cane juice, caramel, carob, corn sweetener, corn syrup, date paste, dextran, dextrose, diatase, ethyl maltol, Florida crystals, fructose, fruit juice concentrate, galactose, glucose, glucose-fructose, high fructose corn syrup, honey, lactose, maltodextrin, maltose, molasses, nectar, panocha, sucrose, sugar, syrup, and treacle.[33,34,35] High-level terms such as 'sugar' or 'syrup' contained multiple varieties of added sugars (e.g. "icing sugar", "grape sugar", "raw sugar"; "rice syrup", "golden syrup"). Terms more commonly recognized on their own, such as "corn syrup", were included in independent categories. The search method accounted for sugars with overlapping names, such as "fructose" and "high-fructose corn syrup", and excluded unwanted non-sugar ingredients that might be identified with the search terms, such as "*honey*dew melon" or "*caramel*ized onions". We excluded sugar alcohols such as sorbitol, glycerol and erithritol from our search, as they contain insignificant amounts of energy, as done in previous research.[29,36]

"Total sugar", as opposed to added sugar, indicates the total grams of sugar in one serving of a food product, including added, intrinsic, and milk sugars.[2] We identified total sugar using an existing variable in the database that provided grams of sugar per serving, as listed on the products' Nutrition Facts tables.

Statistical Analysis

This study utilized 'COUNTIF' functions in Excel 2013 to search for each added sugar term, including searches for variations in spelling and punctuation. The researchers used SPSS statistics software (version 22.0; IBM Corp., Armonk, NY, USA; 2014) to perform descriptive statistics (counts, means, standard deviations, and proportions) and to conduct t-tests to analyze significant differences in total sugar between products with and without added sugars.

RESULTS

Overall, 66% of the 40,829 packaged food products contained at least one added sugar in their ingredients list.

Types of added sugars

Table 2 displays the frequency and proportion at which each different added sugar term appeared in the products examined. The most common added sugar term was 'sugar', identified in 54% of all food products analyzed. The next five most frequently appearing terms (dextrose, glucose, glucose-fructose, corn syrup, and maltodextrin) were found in 45% of all food products, collectively. The terms 'dextran', 'diatase', 'Florida crystals', 'galactose', and 'panocha' were also included in the search strategy as potential added sugars, but they did not appear in any of the food products analysed.

Sugar content

Table 1 displays the mean amount of total sugar present in products by subcategory. Overall, products in the 'Beverages' category contained the highest mean levels of total sugar levels. The 'Milk and Dairy' and 'Snacks and Sweets' categories were highly variable in the total sugar levels across their subcategories. 'Condiments, Sauces and Spreads', 'Infant Formula and Baby Food', and 'Fruits and Vegetables' contained the next highest levels of total sugar. The remaining categories of 'Protein Foods', 'Mixed Dishes', 'Grains' and 'Baked Goods' all contained relatively lower levels of total sugars in comparison to the other categories.

Table 1 also displays the proportion of the foods in each subcategory that contained at least one added sugar in their ingredients list, according to the search method. These results followed a similar pattern to the mean total sugar described previously, with high proportions of added sugar in categories with high total sugar. Some notable exceptions included the 'cured meats', 'soups', 'pizza', 'Mexican', and 'breads' subcategories, in which a high proportion of the products contained added sugar, but the mean total sugar content was relatively low.

Total sugar in products with and without added sugar

Table 1 presents the mean amount of total sugar found in products identified as having added sugar and in those without, by subcategory. The overall mean total sugar in products with added sugar was significantly higher than the overall total sugar in products without added sugar, at 11.0 g and 2.9 g respectively ($t = -80.830$; $p<0.0001$). There were also significant differences in total sugar content between products with and without added sugar within each of the subcategories ($p<0.01$ in all cases), with the exception of 'pizza' ($p=0.75$) and 'Mexican' ($p=0.95$) subcategories.

The search strategy resulted in 2,311 food products that contained "0 g" of total sugar per serving, but were identified as having at least one added sugar in their ingredients list. This discrepancy may be primarily explained by the fact that Canada's Nutrition Facts table guidelines allow manufacturers to list total sugar as 0 g if one serving of the food product contains less than 0.5 g of total sugar.[37]

INTERPRETATION

The results of the current study indicate that approximately two-thirds of the packaged food products sold in a major Canadian supermarket retailer contain added sugar. These results are comparable to estimates reported by Popkin and Hawkes in the US, and suggest a high level of consistency in added sugar presence across the North American food supply.[29] The retailer analyzed in this study commands approximately one third of the Canadian supermarket market share, serving a large proportion of shoppers in this country. Given the company's widespread permeation across Canada, it is reasonable to argue that the sample of over 40,000 food products analyzed in this study is a realistic representation of the entire Canadian packaged food supply.

The added sugar term most commonly identified in ingredients lists ("sugar" and its variations) may be familiar to consumers, but numerous lesser-known terms also appear frequently, which consumers may not recognize as added sugars. This diverse terminology may pose a challenge for consumers trying to identify whether or not a product contains added sugar. The presence of added sugar was highest in the expected food products including candy, sweet bakery products, and soda, but was also very high in food products that many consumers choose as "healthy" options, such as snack bars, cereal, and juice. Mean amounts of total sugar were highest in similar food categories to those that had a high presence of added sugar. Foods that contain added sugar tend to have significantly higher total sugar contents than those without added sugar. Some exceptions to this observation were the 'pizza' and 'Mexican' food product categories, both of which had very high proportions of products containing added sugar, but relatively low mean total sugar contents. These discrepancies indicate that while the majority of the products in those food categories do contain added sugar, the average amount of added and intrinsic sugars across those products is very small.

There is little known about consumers' level of knowledge and awareness of added sugars in food products. However, evidence does suggest consumers have several misunderstandings about sugars and sugar processing, including confusion about the safest ways to consume sugars in a healthy diet, and

the belief that sugar content of fruit juice is less of a health risk than soft drinks.[38] Further, around one-quarter of young people cannot identify if there is added sugar present in a food item when there is no added sugar information on Nutrition Facts tables.[39] In an effort to address the confusion over added sugars, the US has recently finalized updates to their Nutrition Facts label that include requirements to distinguish between intrinsic and added sugars, with a percent daily value (%DV) for added sugars based on the USDA recommendation that they not exceed 10% of total daily calories.[40] Health Canada has also recently considered the addition of an added sugar value on Nutrition Facts tables, as well as a reorganization of the ingredients list that would group all sugars together in a set of brackets, which may aid consumers in finding and reading added sugars in the list of ingredients.[41,42]

Limitations and Strengths

The products in this study come from the largest food retailer in Canada across of a range of supermarket "banners"; however, the data does not include products from other retailers. Additionally, the food product data used in this study were not linked with supermarket transaction data, therefore the results reflect what is available for purchase rather than sales weighted data on consumer purchasing behaviours. Despite these limitations, the product database analyzed in the current paper represents the largest database of pre-packaged foods in Canada of which we are aware.

Not all of the products in the food database were sold within a two-week period for which sales data was available. However, there were no substantial differences between the presence of added sugar in the 40,829 products analyzed (66.0% containing added sugar) and in the portion of those that were verified as sold within March 1 to 15, 2015 (67.2% containing added sugar). The decision to include all products reported in the food database (as opposed to only those sold during the two-week period) is that it provides a more comprehensive analysis of seasonal and non-seasonal products that may not be captured in sales transactions over a single two-week time period.

The number of different ways in which added sugar is reported as an ingredient represents an additional challenge. Efforts were undertaken to include all relevant ingredients; however, the search strategy may have overlooked some new or rare terms for added sugar.

Conclusions

A high proportion of pre-packaged foods in Canada contain added sugar. The current findings underscore the prevalence of added sugar in the Canadian food supply, as well as the difficulty of identifying added sugar content, which requires a detailed understanding of the many ways in which added sugar is reported as an ingredient. In the absence of requirements to report added sugar levels in nutrition labels, Canadian consumers lack the information necessary to act on public health recommendations to limit added sugar consumption.

REFERENCES

1. Institute of Medicine of the National Academies (2002) Chapter 6, Dietary Carbohydrates: Sugars and Starches. In *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*, pp. 265-338. Washington, DC: The National Academies Press.

2. World Health Organization (2015) Guideline: sugars intake for adults and children. http://apps.who.int/iris/bitstream/10665/149782/1/9789241549028_eng.pdf?ua=1 (accessed December 2015).

3. Murphy P, Johnson R (2003) The scientific basis of recent US guidance on sugars intake. *Am J Clin Nutr* **78**, 8275-335.

4. Yang Q, Zhang Z, Gregg EW *et al*. (2014) Added sugar intake and cardiovascular disease mortality among US adults. *JAMA Intern Med* **174**, 516-24.

5. Johnson RK, Appel LJ, Brands M *et al*. (2009) Dietary sugars intake and cardiovascular health: a scientific statement from the American Heart Association. *Circulation* **120**, 1011-20.

6. Liu S, Willett WC, Stampfer MJ *et al*. (2000) A prospective study of dietary glycemic load, carbohydrate intake, and risk of coronary heart disease in US women. *Am J Clin Nutr* **71**, 1455-61.

7. Bray GA, Nielsen SJ, Popkin BM (2004) Consumption of high-fructose corn syrup in beverages may play a role in the epidemic of obesity. *Am J Clin Nutr* **79**, 537-43.

8. Pollock NK, Bundy V, Kanto W *et al*. (2012) Greater fructose consumption is associated with cardiometabolic risk markers and visceral adiposity in adolescents. *J Nutr* **142**, 251-7.

9. Sievenpiper JL, de Souza RJ, Mirrahimi A *et al*. (2012) Effect of fructose on body weight in controlled feeding trials: a systematic review and meta-analysis. *Ann Intern Med* **156**, 291-304.

10. Te Morenga L, Mallard S, Mann J (2013) Dietary sugars and body weight: systematic review and meta-analyses of randomised controlled trials and cohort studies. *BMJ* **346**, e7492.

11. Wang H, Steffen LM, Zhou X *et al*. (2013) Consistency between increasing trends in added-sugar intake and body mass index among adults: the Minnesota Heart Survey, 1980-1982 to 2007-2009. *Am J Public Health* **103**, 501-7

12. Basu S, Yoffe P, Hills N *et al.* (2013) The relationship of sugar to population-level diabetes prevalence: an econometric analysis of repeated cross-sectional data. *PLoS One* **8**, e57873.

13. Cozma AI, Sievenpiper JL, de Souza RJ *et al*. (2012) Effect of fructose on glycemic control in diabetes: a systematic review and meta-analysis of controlled feeding trials. *Diabetes Care* **35**, 1611-20.

14. Davis JN, Ventura EE, Weigensberg MJ *et al*. (2005) The relation of sugar intake to β cell function in overweight Latino children. *Am J of Clin Nutr* **82**, 1004-10.

15. Gross LS, Li L, Ford ES *et al*. (2004) Increased consumption of refined carbohydrates and the epidemic of type 2 diabetes in the United States: an ecologic assessment. *Am J Clin Nutr* **79**, 774-9.

16. Janket SJ, Manson JE, Sesso H *et al*. (2003) A prospective study of sugar intake and risk of type 2 diabetes in women. *Diabetes Care* **26**, 1008-15.

17. Sievenpiper JL, Carleton AJ, Chatha S *et al*. (2009) Heterogeneous effects of fructose on blood lipids in individuals with type 2 diabetes: systematic review and meta-analysis of experimental trials in humans. *Diabetes Care* **32**, 1930-1937.

18. Welsh JA, Sharma A, Abramson JL *et al*. (2010) Caloric sweetener consumption and dyslipidemia among US adults. *JAMA* **303**, 1490-1497.

19. Larsson SC, Bergkvist L, Wolk A (2006) Consumption of sugar and sugar-sweetened foods and the risk of pancreatic cancer in a prospective study. *Am J Clin Nutr* **84**, 1171-1176.

20. Moynihan PJ, Kelly SAM (2014) Effect on caries of restricting sugars intake: Systematic review to inform WHO guidelines. *J Dent Res* **93**, 8-18.

21. World Health Organization (2015) Information note about intake of sugars recommended in the WHO guideline for adults and children. http://www.who.int/nutrition/publications/guidelines/sugar_intake_information_note_en.pdf?ua=1 (accessed December 2015).

22. Heart and Stroke Foundation of Canada (2014) Sugar and your health. http://www.heartandstroke.com/site/apps/nlnet/content2.aspx?c=ikIQLcMWJtE&b=4016859&ct=14183373 (accessed December 2015).

23. U.S. Department of Health and Human Services and U.S. Department of Agriculture (2015) 2015-2020 Dietary Guidelines for Americans, 8th Edition. http://health.gov/dietaryguidelines/2015-

scientific-report/pdfs/scientific-report-of-the-2015-dietary-guidelines-advisory-committee.pdf (accessed April 2016).

24. Popkin BM (1993) Nutritional patterns and transitions. *Popul Dev Rev* **19**, 138-57.

25. Drewnowski A, Rehm CD (2014) Consumption of added sugars among US children and adults by food purchase location and food source. *Am J Clin Nutr* **100**, 901-7.

26. Popkin BM, Nielsen SJ (2003) The sweetening of the world's diet. *Obes Res* **11**, 1325-32.

27. Brisbois TD, Marsden SL, Anderson GH *et al*. (2014) Estimated intakes and sources of total and added sugars in the Canadian diet. *Nutrients* **6**, 1899-912.

28. Srinivasan CS, Irz X, Shankar B *et al*. (2005) An assessment of the potential consumption impacts of WHO dietary norms in OECD countries. *Food Policy* **31**, 53-77.

29. Popkin BM, Hawkes C (2016) Sweetening of the global diet, particularly beverages: patterns, trends, and policy responses. *Lancet Diabetes Endocrinol* **4**, 174-86.

30. United States Department of Agriculture (2012) What We Eat in America food categories. http://www.ars.usda.gov/SP2UserFiles/Place/80400530/pdf/1112/food_category_list.pdf (accessed December 2015).

31. Mann J, Fleck F (2014) The science behind the sweetness in our diets. *Bull World Health Organ* **92**, 780-1.

32. World Health Organization and the Food and Agriculture Organization of the United States (2003) WHO Technical Report 916: Diet, nutrition and the prevention of chronic diseases. http://www.who.int/dietphysicalactivity/publications/trs916/en/gsfao_introduction.pdf (accessed December 2015).

33. United States Department of Agriculture (2016) What are added sugars? https://www.choosemyplate.gov/what-are-added-sugars (accessed April 2016).

34. Harvard T.H. Chan School of Public Health (2015) Added sugar in the diet. http://www.hsph.harvard.edu/nutritionsource/carbohydrates/added-sugar-in-the-diet (accessed December 2015).

35. SugarScience (2015) 61 names for sugar. http://www.sugarscience.org/hidden-in-plain-sight/#.Vm8Wh1UrJaQ (accessed December 2015).

36. United States Food and Drug Administration (2013) Guidance for industry: a food labeling guide. http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm064911.htm (accessed December 2015).

37. Government of Canada. Regulations Amending the Food and Drug Regulations (Nutrition Labelling, Nutrient Content Claims and Health Claims). *Canada Gazette Part II.* 2003;137:165 (SOR/2003-11). http://publications.gc.ca/gazette/archives/p2/2003/2003-01-01/pdf/g2-13701.pdf (accessed December 2015).

38. Institute of Grocery Distribution (2010) Working group report, sugars: improving information and messages to consumers. http://shoppervista.igd.com/sitecontent/dotcomcontent/samplepages/Sugars%20-%20Improving%20information%20and%20messages%20to%20consumers.pdf (accessed December 2015).

39. Vanderlee L, White CM, Bordes I *et al*. (2015) The efficacy of sugar labeling formats: implications for labeling policy. *Obesity* **23**, 2406-13.

40. U.S. Food and Drug Administration (2015) Proposed changes to the nutrition facts label. http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm385663.htm (accessed December 2015).

41. Government of Canada (2015) Proposed food label changes. http://www.healthycanadians.gc.ca/health-system-systeme-sante/consultations/food-label-etiquette-des-aliments/index-eng.php (accessed April 2016).

42. Government of Canada (2015) Nutrition labelling – table of daily values. http://healthycanadians.gc.ca/health-system-systeme-sante/consultations/food-label-etiquette-des-aliments/daily-values-valeurs-quotidiennes-eng.php (accessed January 2016).

TABLES

Table 1. Total Sugar and Added Sugar by Food Product Subcategory

	Mean TS g (s.d.)	Proportion with AS %	TS among those without AS g (s.d.)	TS among those with AS g (s.d.)	Difference in TS g
MILK & DAIRY					
All Milk & Cream	12.5 (8.9)	32.5	10.4 (4.3)	17.0 (13.3)	6.6
Dairy drinks & substitutes	7.9 (6.4)	63.1	3.4 (5.2)	10.5 (5.5)	7.1
Cheese	0.7 (1.9)	10.7	0.4 (1.6)	2.6 (2.8)	2.2
Yogurt	14.2 (7.8)	73.8	6.1 (3.9)	17.1 (6.7)	11
PROTEIN FOODS					
Red meat & poultry	2.4 (3.8)	68.2	0.6 (1.2)	3.2 (4.3)	2.6
Fish & Seafood	1.0 (1.9)	43.9	0.1 (0.5)	2.2 (2.2)	2.1
Cured meats	0.7 (1.8)	85.0	0.3 (2.3)	0.8 (1.7)	0.5
Canned fish/meats	0.8 (4.2)	30.5	0.1 (0.4)	2.5 (7.4)	2.4
Plant-based Protein Foods[a]	2.7 (4.0)	20.6	1.8 (2.2)	6.1 (6.5)	4.3
MIXED DISHES					
Soups	3.0 (3.8)	78.2	2.1 (4.4)	3.3 (3.5)	1.2
Pizza	3.5 (2.1)	98.5	*	3.5 (2.2)	---
Mexican	2.0 (1.4)	75.6	2.0 (1.7)	2.0 (1.3)	0.0
Frozen dinners/entrees	5.9 (7.3)	74.2	2.7 (2.6)	7.1 (8.1)	4.4
Other mixed dishes	4.9 (6.4)	71.4	2.0 (2.2)	6.0 (7.1)	4.0
GRAINS					
Cereals[b]	8.3 (5.4)	85.7	1.2 (2.8)	9.5 (4.8)	8.3
Grains[c]	1.4 (2.5)	17.2	1.2 (2.4)	2.5 (2.9)	1.3
BAKED GOODS					
Breads[d]	2.2 (2.6)	70.6	0.8 (1.5)	2.8 (2.8)	2.0
SNACKS & SWEETS					
Savory snacks	2.6 (4.7)	53.5	1.0 (2.7)	3.9 (5.5)	2.9
Crackers	1.7 (2.6)	68.9	0.5 (1.3)	2.3 (2.8)	1.8
Snack/meal bars	10.3 (3.8)	99.4	*	10.4 (3.8)	---
Sweet bakery products	14.1 (9.0)	97.7	2.0 (3.7)	14.4 (8.9)	12.4
Candy	18.1 (9.0)	97.6	6.0 (8.6)	18.4 (8.8)	12.4
Other desserts	14.9 (7.3)	96.3	3.1 (4.6)	15.4 (7.0)	12.3
BEVERAGES					
Juice	22.0 (10.6)	79.3	15.9 (12.0)	23.6 (9.6)	7.7
Pop/Soda, Iced teas	26.5 (18.0)	76.8	0.5 (3.2)	34.3 (12.4)	33.8
Sports drinks, energy drinks, flavoured water	21.4 (18.0)	78.1	3.5 (7.5)	26.5 (16.9)	23.0
Beverage mixes & crystals	17.0 (4.4)	95.8	*	17.4 (4.0)	---
CONDIMENTS, SAUCES & SPREADS					
Condiments, sauces & spreads[e]	5.7 (7.8)	73.1	2.7 (7.3)	6.8 (7.7)	4.1
INFANT FORMULA & BABY FOOD					

Infant formula & baby food	6.9 (6.0)	47.7	5.8 (5.7)	8.0 (6.1)	2.2
FRUITS & VEGETABLES					
Fruits & vegetables[f] (Packaged/Processed)	9.6 (13.4)	34.8	7.6 (14.4)	13.2 (10.2)	5.6

AS, Added Sugar; TS, Total Sugar.

*Categories contain a negligible total (≤ 5 food products)

[a] Includes beans, peas, legumes, nuts, seeds, and processed soy products.

[b] Includes all hot and cold cereals.

[c] Includes products such as pasta and rice.

[d] Includes all varieties of bread products such as rolls, wraps and pitas.

[e] Includes a wide variety of products such as jams, syrups, toppings, honey, gravy and salsa.

[f] Includes only packaged or processed fruit and vegetable products, such as canned fruits and vegetables, dried packaged fruits, and applesauce-type fruit snacks.

Table 2. Frequency of Different Added Sugars (N=40,829)

Added Sugar	Total Number of products	% All Products	% Products with added sugar
Sugar (all other)	21869	54%	81%
Dextrose	4892	12%	18%
Glucose	3847	9%	14%
Glucose-Fructose	3555	9%	13%
Corn Syrup	3181	8%	12%
Maltodextrin	3015	7%	11%
Fruit Juice Concentrate	2278	6%	9%
Honey	1596	4%	6%
Molasses	1486	4%	6%
Syrup (all other)	1177	3%	4%
Lactose	885	2%	3%
Fructose	742	2%	3%
Cane Juice	706	2%	3%
Malt/Barley Malt	400	1%	2%
High-Fructose Corn Syrup	361	1%	1%
Caramel	302	1%	1%
Agave	190	1%	1%
Sucrose	125	<1%	1%
Date Paste	40	<1%	<1%
Maltose	27	<1%	<1%
Carob	10	<1%	<1%
Treacle	7	<1%	<1%
Ethyl Maltol	6	<1%	<1%
Corn Sweetener	4	<1%	<1%
Nectar (other than agave)	4	<1%	<1%
Dextran	0	0%	0%
Diatase	0	0%	0%
Florida Crystals	0	0%	0%
Galactose	0	0%	0%
Panocha	0	0%	0%