

Report on the comparative nutritional profile of 11,041 food and beverage products marketed by 11 large global companies operating in the USA.

Prepared by The George Institute for the Access to Nutrition Initiative

Contact

Dr Elizabeth Dunford
The George Institute for Global Health
edunford@georgeinstitute.org.au



The George Institute
for Global Health



FOODSWITCH

ABBREVIATIONS

ATNI – Access to Nutrition Initiative

HSR – Health Star Rating

NPSC - Nutrient Profile Scoring Criterion

WHO – World Health Organization

DISCLAIMERS

The George Institute for Global Health (The George Institute) prepared this report. Sections of this report involving analysis of sales-weighted data were prepared by ATNI under the terms of their licence to use Euromonitor International data.¹ In addition, ATNI commissioned additional product composition data from Innova Market Insights.² ATNI is to assume responsibility for these aspects of the analysis.

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¹ Euromonitor International is an independent, privately owned global market research firm conducting in-country research in 100 countries worldwide analysing 26 consumer industries including; Hot Drinks, Packaged Food and Soft Drinks. Euromonitor International produces historic and forecast cross-comparable market data and strategic reports to narrate the current and future drivers shaping each one.

² Innova Market Insights is a commercial knowledge supplier for the Food and Beverage industry.

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EXECUTIVE SUMMARY

The overall goal of this work is to provide stakeholders, including companies, government, nutrition experts and others, with a fuller understanding of the nutritional quality of packaged food and non-alcoholic beverage products sold by 11 of the largest manufacturers in the USA. Nutrient information for 11,041 packaged food and beverage products sold by these companies was included in this analysis. Nutrient information was obtained directly from the manufacturer and supplemented with data from company websites and in-store visits where required.

The Health Star Rating (HSR) system was used to assess the healthiness of company product portfolios. The proportion of products that could be considered 'healthy' using the HSR was determined using a cut-off of 3.5 out of 5.0 stars and was examined both by company and by category. Each company was then ranked by the mean HSR of their product portfolio. This part of the analysis was done both with and without sales-weighting using data from Euromonitor International. Of note is that in 2021, an updated version of the HSR algorithm was released, and so results using both algorithms are presented in the report to facilitate comparisons with previous report results.

The mean healthiness of companies' products was found to be low overall, at 2.3 stars out of 5.0, with substantial variation observed between companies. Less than a third (31%) of products met the HSR 'healthy' cut-off of 3.5 out of 5.0 stars. Sales-weighting changed the rankings of some companies in relation to healthiness, in some cases indicating that a company's sales derived predominantly from less healthy food and beverage categories. For example, General Mills and Nestlé were the only companies to have a sales-weighted mean HSR higher than their unweighted mean HSR, indicating healthier products were among the higher-selling products. When comparing the old and new HSR algorithms, the overall ranking of companies using sales-weighted mean HSR did not change. However, there were large changes observed in the proportion of products considered healthy, with some beverage companies seeing an increase due to increased HSRs assigned to unsweetened flavoured waters and zero calorie beverages.

In addition to the remedial actions that the companies could take to improve the healthiness of their product portfolios and increase sales of healthier products through marketing strategies, there is a clear opportunity for the US to introduce effective and enforceable legislation that prevents the marketing of unhealthy products and pushes companies to apply reformulation strategies on their products.

BACKGROUND

The George Institute for Global Health’s mission is to improve the health of millions of people worldwide. More specifically, the Food Policy Division works to reduce rates of death and disease caused by diets high in salt, saturated fat, sugar and excess energy by undertaking research and advocating for a healthier food environment. The Division’s main areas of activity are quantifying the healthiness of the food supply, encouraging food reformulation, and developing innovative approaches to encourage consumers to make healthier food choices.

In 2022, The George Institute was commissioned by the Access to Nutrition Initiative (ATNI) to produce the second *Product Profile* for the US to input into the *US Spotlight Index 2022*. The Index will score and rank the contribution of 11 large food and beverage manufacturers in the US to tackling the country’s nutrition and health challenges. It will consist of an analysis of those companies’ policies, practices and disclosures (the *Corporate Profile*), which includes an analysis of the nutritional quality of each company’s food and beverage products in the US market (the *Product Profile*).

This report sets out the objectives, methods, results and interpretation of the US *Product Profile* analysis done in 2022 for the *US Spotlight Index 2022*.

OVERALL GOAL

The overall goal of this work is to provide stakeholders, including companies, government, nutrition experts and others with a fuller understanding of the healthiness of packaged food and non-alcoholic beverage products (hereafter “foods and beverages”) sold by 11 of the largest manufacturers in the US.³

METHODOLOGY

Selection of companies

ATNI requested The George Institute to include the products of 11 manufacturers with the highest estimated packaged food and beverage retail sales in the US.⁴ The included companies, in alphabetical order, are:

- Campbell Soup Company (Campbell)
- The Coca-Cola Company (Coca-Cola)
- Conagra Brands, Inc. (Conagra)
- General Mills, Inc. (General Mills)
- Keurig Dr Pepper Inc. (KDP)
- Kellogg Company (Kellogg)
- The Kraft Heinz Company (Kraft Heinz)
- Mars Inc. (Mars)
- Nestlé S.A. (Nestlé)
- PepsiCo, Inc. (PepsiCo)
- Unilever PLC (Unilever)

³ Note that nutritional quality for the purposes of this report does not include assessment of whether products have been fortified with micronutrients.

⁴ Data extracted from Euromonitor International (2021) industry publications of Drinks, Food and Nutrition .

Choice of nutrient profile models

Nutrient profiling is the science of classifying or ranking foods according to their nutritional composition for the purpose of preventing disease and promoting health.⁵ Nutrient profile models have been developed by academics, government departments, health-related charities and the food industry for a variety of applications including: to underpin food labelling; to regulate advertising of products to children; and to regulate health and nutrition claims. Although nutrient profiling is a tool to quantify aspects of individual foods, not diets, nutrient profile models are commonly used to underpin policies designed to improve the overall nutritional quality of diets.

The ATNI Global Index reports, as well as individual country profiles and reports, use the Australasian Health Star Rating system as the nutrient profiling model for analysis. This model was initially chosen in 2016 as it best suited the types of data available for analysis compared to other nutrient profile models in operation. Since 2016, a number of newer nutrient profile models have been developed, however to ensure consistency in reporting and evaluating change, the HSR continues to be used to benchmark and monitor company efforts over time.

The HSR is a front-of-pack interpretive nutrition labelling system designed to assist consumers in making healthier choices. The underlying nutrient profile model assesses risk nutrients (overall energy, sodium, total sugar, saturated fat) and positive nutrients (fruit and vegetable content, protein, fibre and in some cases, calcium) to score products on the basis of nutritional composition per 100g or 100mL across one of six categories. These scores are then converted to a 'Health Star Rating' from 0.5 to 5 stars. Development was led by the Australian government in collaboration with industry, public health and consumer groups, and builds upon the Nutrient Profiling Scoring Criteria (NPSC) previously developed by the Australian and New Zealand Governments to regulate health claims.⁶ The NPSC itself was developed from the United Kingdom's OFCOM model. The HSR has been implemented in Australia since June 2014 on a voluntary basis. The system has also been adopted in New Zealand. Further detailed information is available [online](#).⁷ Of note is that in 2020, an update to the algorithm underpinning the HSR was released, modifying the scores that some products were able to receive. To allow manufacturers and consumers alike to understand the difference between the original and the updated algorithms, the results for the 2022 US *Product Profile* will be available using [both](#) algorithms. Key differences between the older HSR algorithm and the new HSR algorithm are outlined in the Table on the following page.

⁵ World Health Organization, Nutrient Profiling <http://www.who.int/nutrition/topics/profiling/en/>

⁶ See Australia New Zealand Food Standards Code, Standard 1.2.7

⁷ Department of Health, Australian Health Star Rating website: <http://healthstarrating.gov.au>

Table 1 Changes between the old and new HSR algorithms

Old HSR algorithm	New HSR algorithm	Examples of impact
Nutrients included in category 1 beverages: Energy, protein, saturated fat, total sugars, sodium and V points	Nutrients included in category 1 beverages: Energy, total sugar and V points	Juices are unable to score an HSR of 5.0. Many zero calorie beverages increase from a maximum HSR of 2.5 to 3.5.
V points the same as for all food and beverage products (score from 0-8)	V points modified solely for category 1 beverages (score from 0-10)	Juices can now score V points with lower % of FVNL (25%+) compared to the original algorithm.
Unsweetened waters use the same algorithm as all other category 1 beverages	Unsweetened flavoured waters are given an automatic HSR of 4.5	Scores increase for unsweetened flavoured water products from a previous HSR of 2.5 to 4.5 (for products with no added sugar or sweeteners)
Fresh and minimally processed fruits and vegetables use the same algorithm as all other foods	Fresh and minimally processed fruits and vegetables are given an automatic HSR of 5.0	Some packaged fruit and vegetable products with minimal processing now have a higher HSR than when using the old algorithm.
Points given for total sugar and sodium content for category 1D, 2 and 2D products.	Points given for total sugar and sodium content have been modified from the original algorithm for category 1D, 2 and 2D products.	Examples include that in the old HSR algorithm, any product with >8106mg/100g sodium would receive 30 points (with more points indicating a worse rating) and in the new HSR algorithm products with >2700mg/100g receive the same number of points. Stricter points for total sugar and sodium mean that products with high sugar and/or sodium will score more poorly in the new HSR algorithm compared to the old algorithm.
Points allocated to each star rating for category 2D foods	Category 2D products were able to achieve a higher HSR under the new algorithm compared to the old algorithm	Some (not all) category 2D products that received 0.5 HSR under the old algorithm are able to score up to 2.5 under the new algorithm.

Eligibility of food and beverage products

Foods and beverages eligible for inclusion were defined as *'all packaged foods and non-alcoholic beverages manufactured by the included companies available for purchase in the US.'* A food or beverage was considered a unique item based on the brand name and description irrespective of serving size and packaging (i.e. a specific brand of cola sold in 330mL cans was considered to be the same food item as the same specific brand of cola sold in 600mL bottles). However, if two products with the same name and description existed yet had different values for energy, both products were retained in the analysis.

The following products were excluded from analyses:

1. Unprocessed meat, poultry, fish and raw agricultural commodities such as plain cereals (on the basis that such foods are not generally required to carry a nutrient declaration)
2. Plain tea and coffee (on the basis that these make an inherently low nutritional contribution and are thereby not required to display a nutrient declaration)
3. Condiments such as herbs, salt, pepper, vinegars and spices (on the basis that these make an inherently low nutritional contribution and are thereby not required to display a nutrient declaration)
4. Infant formulas, and baby food and baby beverages (excluded because these products are not consumed by the general population and the selected models are not appropriate for their evaluation).

Product identification and data review

Data from the 2020 Global Index were used as a starting point. Manufacturers were sent the nutrient information for products used in the 2020 Global Index and were asked to provide information for any new products that had entered the market since the Global Index, and also identify products that had been discontinued. In early 2022, the 11 companies were provided with their data for review (product list and nutrient content) and offered an opportunity to make corrections or additions. All 11 companies did this, and any corrected or new information was updated in the project database.

Imputation of essential missing data

For many products, proxy values for the presence of 'fruit, vegetable, nut and legume' were required. Although many companies provided this information, if missing, the product was assigned to one of The George Institute's 1037 global food categories and proxy values for the proportion of the product containing fruit, vegetable, nut and legume were assigned.

Product categorisation

Products were categorised in two ways:

- To one of 1037 categories within the Global FoodSwitch database (where required)
- To one of 20 categories within the Euromonitor International food and beverage categorisation system. This categorisation was made to enable the nutrition analysis to be combined with sales data.

Groupings of Euromonitor International categories and sub-categories – hereafter called 'EMI subsets' - were made to generate subsets of products of sufficient size to allow nutritional analysis of comparable food products.

Table 2 EMI subsets

Food categories	Beverage categories
Baked goods	Bottled water - other
Breakfast cereals	Bottled water - pure
Confectionery	Energy drinks
Dairy	Juice
Ice cream	Other hot drinks
Processed fruit and vegetables	RTD tea
Processed meat, seafood and alternatives to meat	Sports drinks
Ready meals	
Rice, pasta and noodles	
Sauces, dressings and condiments	
Savoury snacks	
Soup	
Sweet biscuits, snack bars and fruit snacks	

Definitions for subsets can be found in the [Annex to this report](#). ATNI divides the Bottled Water category into two subsets: pure, which includes Carbonated Bottled Water and Still Bottled Water products; and other, which includes Flavoured Bottled Water and Functional Bottled Water products.

Sales data

Sales data were obtained at the EMI subset level for each company. This was used to generate sales-weighted outcomes for analyses. As ATNI held the licence for the Euromonitor International data, ATNI accepts full responsibility for these components of the report.

The sales data were those for the 2021 period. The top 5 categories (by sales-values) for each of the 11 manufacturers were included. Where a company did not command 1% or more market share in a category, this category was excluded from analysis. Two companies (Unilever and PepsiCo) provided ATNI directly with sales data in place of Euromonitor sales data.

Analysis strategy

There were five research questions addressed:

1. *What is the average nutritional quality of each company's product portfolio and how do companies compare?* This question was addressed by calculating the mean HSR of the product portfolio for each company and ranking companies accordingly. Separate analyses were done for all foods and beverages combined, foods alone and beverages alone. Results are also presented by each EMI subset.
2. *What is the average sales-weighted nutritional quality of each company's product portfolio and how do companies compare?* The metric used was the sales-weighted mean HSR of the product portfolio. ATNI calculated this for each company by: (1) calculating the mean HSR for each EMI subset; (2) multiplying the mean HSR of the food category by the percentage sales for the subset; (3) summing the values obtained for all subsets.
3. *What proportion of each company's products are 'healthy' and how do companies compare?* The metric used was the proportion of the product portfolio that had a HSR of 3.5 stars or above. Separate analyses were done for all foods and beverages combined, foods alone and beverages alone. The cut point of 3.5 or above (≥ 3.5 HSR) is based on work commissioned by the New South Wales Ministry of Health in Australia examining the alignment of HSR with existing school food service provision standards and the Australian 2013 Dietary Guidelines and is the cut-off used most in the academic literature. Research has shown that "healthy core foods with a HSR of ≥ 3.5 can be confidently promoted in public settings as healthier choices."⁸
4. *What proportion of each company's product sales are 'healthy' and how do companies compare?* The metric used was the proportion of a company's sales that were products with a HSR of 3.5 or above. ATNI estimated this for each company by: (1) calculating the percentage of products in each EMI subset with an HSR of 3.5 or above; (2) multiplying that percentage by the percentage sales for the subset; (3) summing these values for all subsets.
5. *What was the effect on company rankings when using the new versus the old HSR algorithm?* The metrics used were the sales-weighted mean HSRs of company portfolios and the proportion of company sales that scored an HSR of 3.5 or above.

The data were analysed using STATA statistical software version 17.

⁸ Dunford E, Cobcroft M, Thomas M, Wu JH. Technical Report: Alignment of the NSW Healthy Food Provision Policy with the Health Star Rating System. Sydney, NSW: NSW Ministry of Health; 2015. Available at <http://www.health.nsw.gov.au/heal/Publications/health-star-rating-system.pdf>

RESULTS

Products included

Initially, 15,217 products were provided by the 11 included companies. Of these, 4,023 were excluded as duplicate products of different pack size and 153 were excluded as they did not have sufficient baseline data to conduct nutrient profiling for the new HSR algorithm. This left 11,041 unique products for analysis from 11 companies.

Table 3 Number of food products by company in EMI subsets

EMI subset	Campbell	Conagra	General Mills	Kellogg	KDP	Kraft Heinz	Mars	Nestlé	PepsiCo	Unilever	Total
Baked goods	133	-	456	124	-	-	-	-	-	-	713
Breakfast cereals	-	-	181	187	-	-	-	-	124	-	492
Confectionery	-	-	-	-	-	-	920	-	-	-	920
Dairy	-	90	343	-	-	98	-	110	-	-	641
Ice cream	-	-	-	-	-	-	45	-	-	471	516
Processed fruit and vegetables	-	302	-	-	39	-	-	-	-	-	341
Processed meat, seafood and alternatives to meat	-	176	-	75	-	162	-	-	-	-	413
Ready meals	-	541	129	-	-	569	-	236	-	68	1,543
Rice, pasta and noodles	-	-	-	-	-	-	82	-	-	-	82
Sauces, dressings and condiments	119	-	-	-	-	491	-	-	-	96	706
Savoury snacks	332	155	-	186	-	-	19	-	943	-	1,635
Soup	372	-	-	-	-	-	-	-	-	15	387
Sweet biscuits, snack bars and fruit snacks	-	-	431	137	-	-	100	-	-	-	668
Total	956	1,264	1,540	709	39	1,320	1,166	346	1,067	650	9057

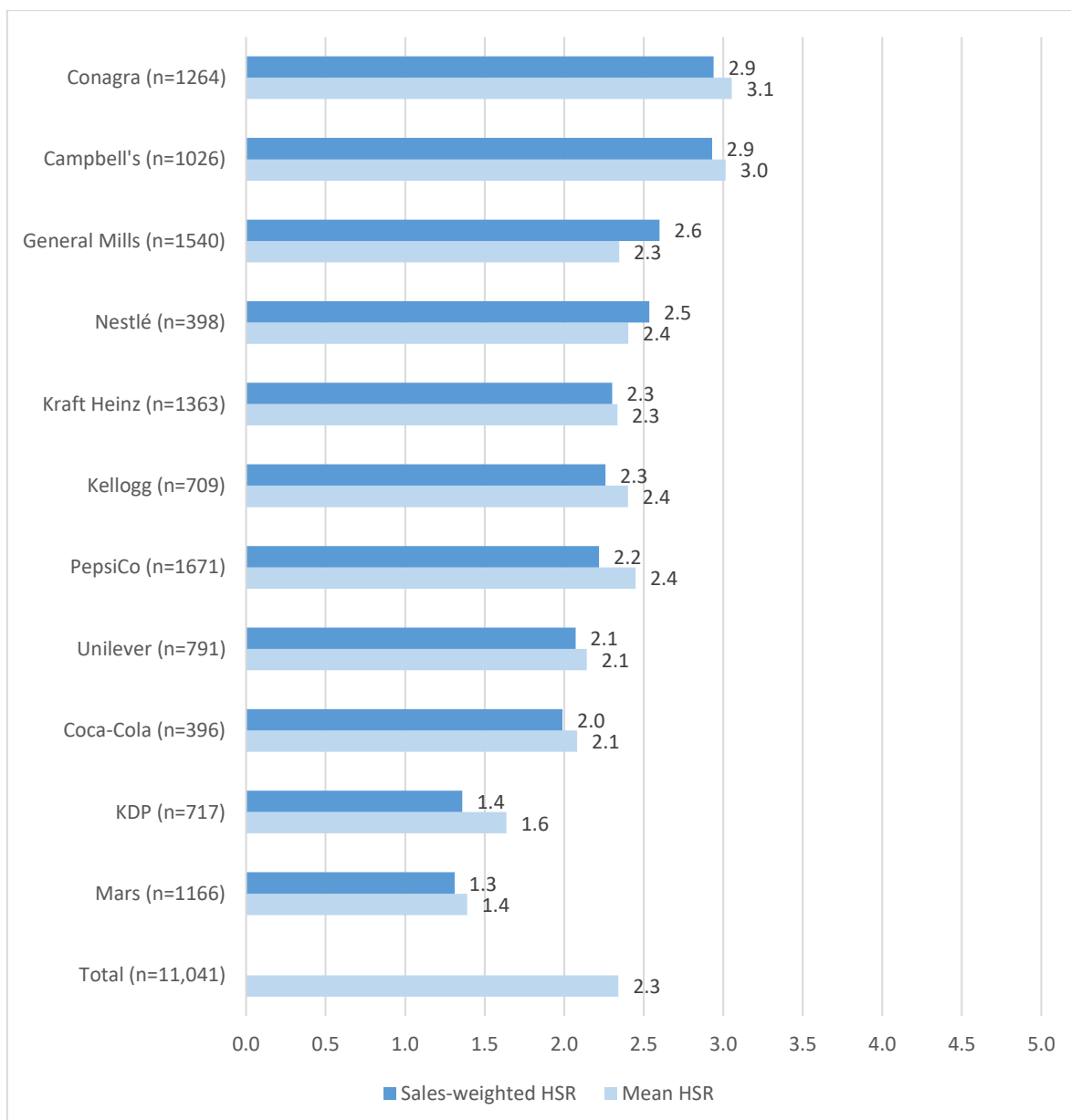
Table 4 Number of beverage products by company in EMI subsets

EMI subset	Campbell	Coca-Cola	KDP	Kraft Heinz	Nestle	PepsiCo	Unilever	Total
Bottled water - other	-	55	61	-	39	-	-	155
Bottled water - pure	-	9	-	-	5	-	-	14
Carbonates	-	139	401	-	-	217	-	757
Energy drinks	-	-	-	-	-	187	-	187
Juice	70	138	171	43	-	-	-	422
Other hot drinks	-	-	-	-	8	-	-	8
RTD Tea	-	-	45	-	-	-	141	186
Sports drinks	-	55	-	-	-	200	-	255
Total	70	396	678	43	52	604	141	1984

The number of products examined in this report ranged from 397 products for Coca-Cola to 1,671 products for PepsiCo. The biggest EMI subsets were *Savoury Snacks* (n=1,635), *Ready Meals* (n=1,543) and *Confectionery* (n=921). The smallest subsets were *Other Hot Drinks* (n=8) and *Bottled Water - Pure* (n=14).

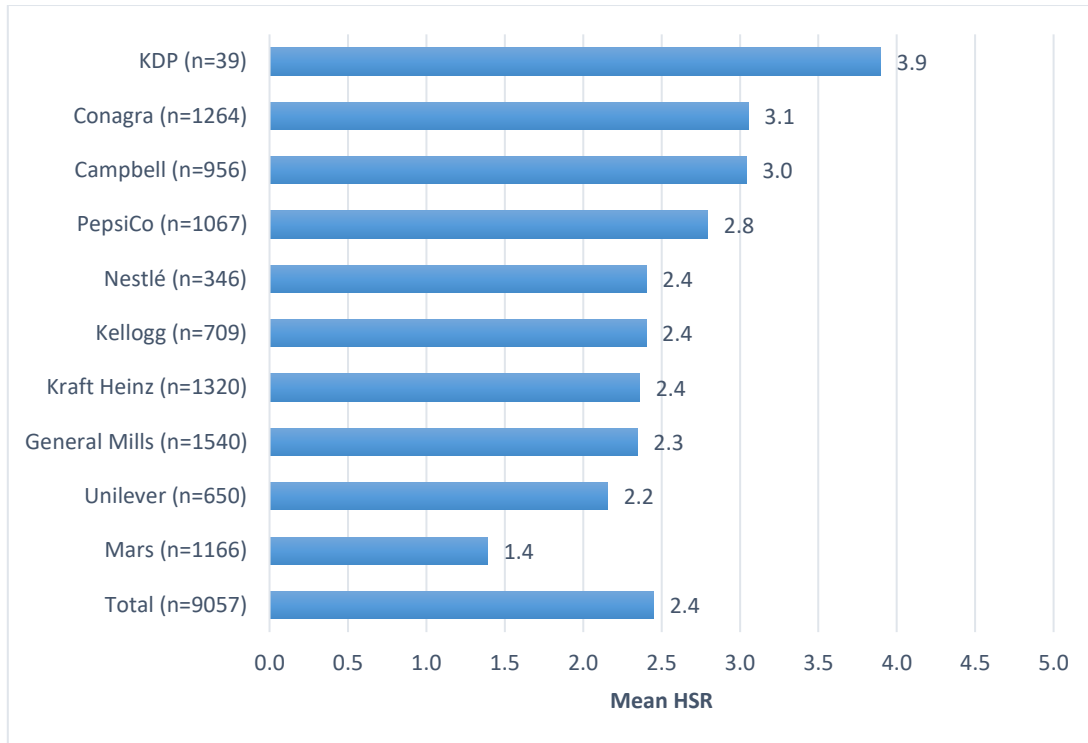
ANALYSIS 1 and 2 Corporate rankings based upon mean nutrient profile of products and sales-weighted nutrient profile of products

Figure 1 Mean Health Star Rating and sales-weighted mean Health Star Rating by company – overall product portfolio (11 companies)



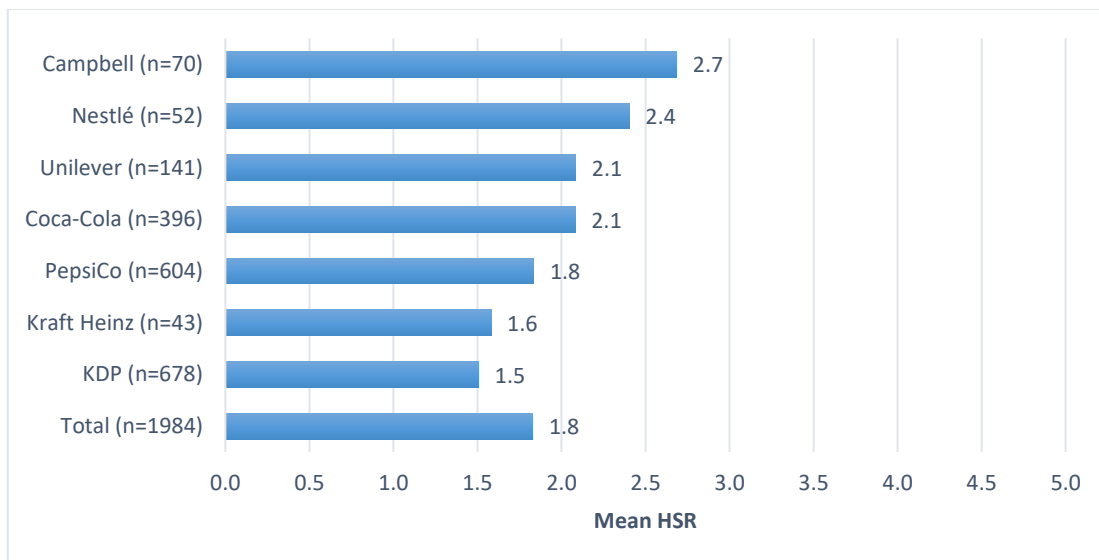
Conagra and Campbell had the highest sales-weighted HSR of 2.9 out of 5.0, with 1264 products and 1026 products assessed for each company respectively. Mars had the lowest mean sales-weighted HSR of 1.3 out of 5.0 as its portfolio of 1166 products comprised of predominantly confectionery items. Overall, average HSR was low at only 2.3 stars out of 5.0 for all companies combined. General Mills and Nestlé were the only companies to have a sales-weighted mean HSR higher than their unweighted HSR, indicating healthier products were available in higher-selling categories. On the other hand, PepsiCo and KDP both had sales-weighted mean HSRs that were 0.2 HSR lower than their unweighted mean HSRs, indicating that less healthy products were driving product sales for these companies.

Figure 2 Mean Health Star Rating by company – foods (10 companies)



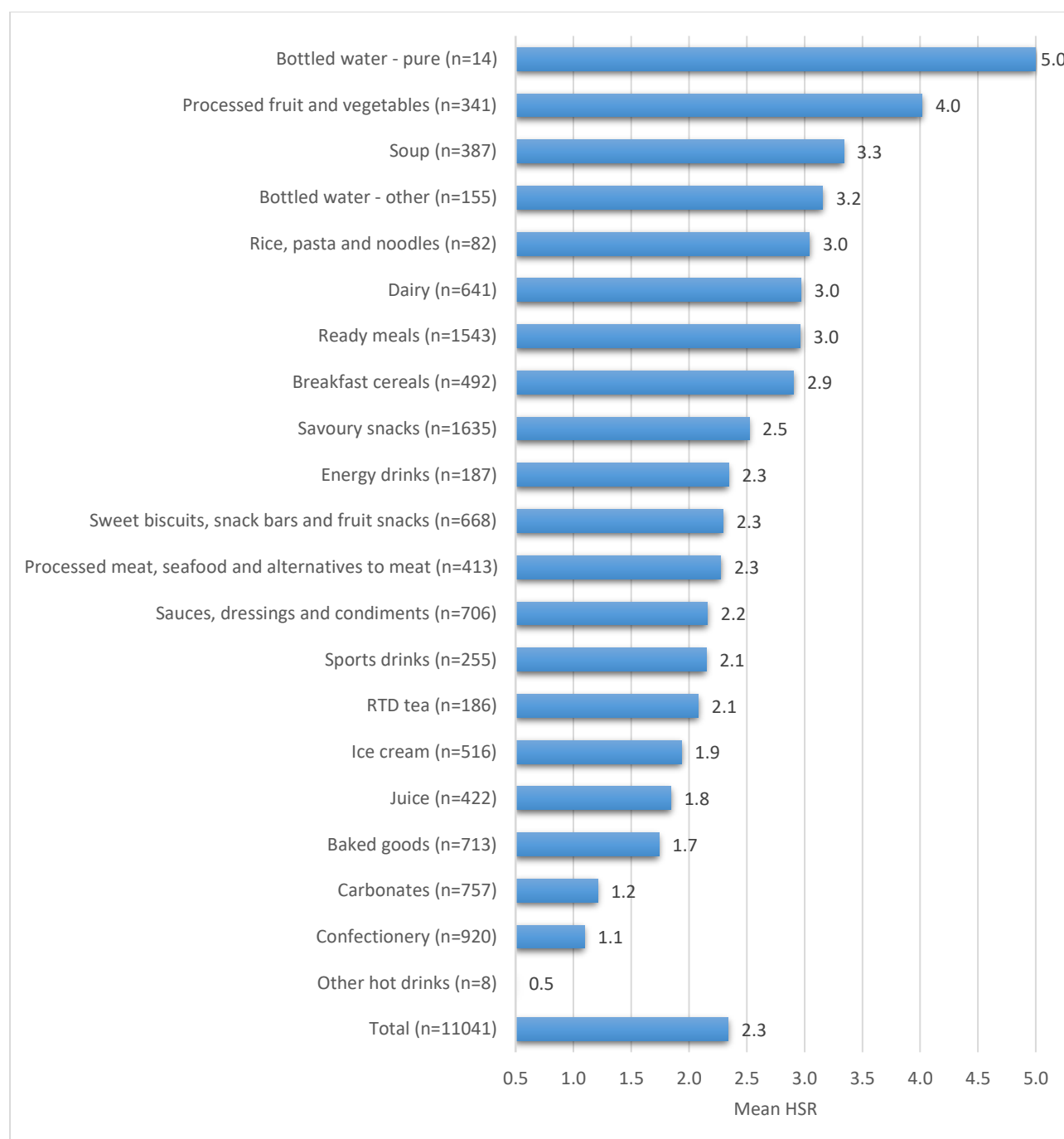
KDP had the highest mean HSR for food products of 3.9, well ahead of the second ranked company, Conagra, with 3.1. This is due to KDP’s only food category being *Processed fruit and vegetables*. Mars had the lowest mean HSR for food products (1.4), driven by its *Confectionery* category. Overall mean HSR for foods was slightly higher than the overall mean with 2.4 stars out of 5.0 for all companies combined.

Figure 3 Mean Health Star Rating by company – beverages (7 companies)



Ratings for beverages were lower than for foods with an overall mean HSR of just 1.8. Campbell had the highest mean HSR of 2.7, and KDP the lowest with 1.5.

Figure 4 Health Star Rating by category



Unsurprisingly, *Processed fruit and vegetables* and *Bottled water - pure* were the two categories that had the highest mean HSR (4.0 and 5.0, respectively). No other category had a mean HSR that would be considered “healthy” (≥ 3.5). *Other hot drinks* was the category with the lowest mean HSR (0.5), followed by *Confectionery* with 1.1 and *Carbonates* with 1.2.

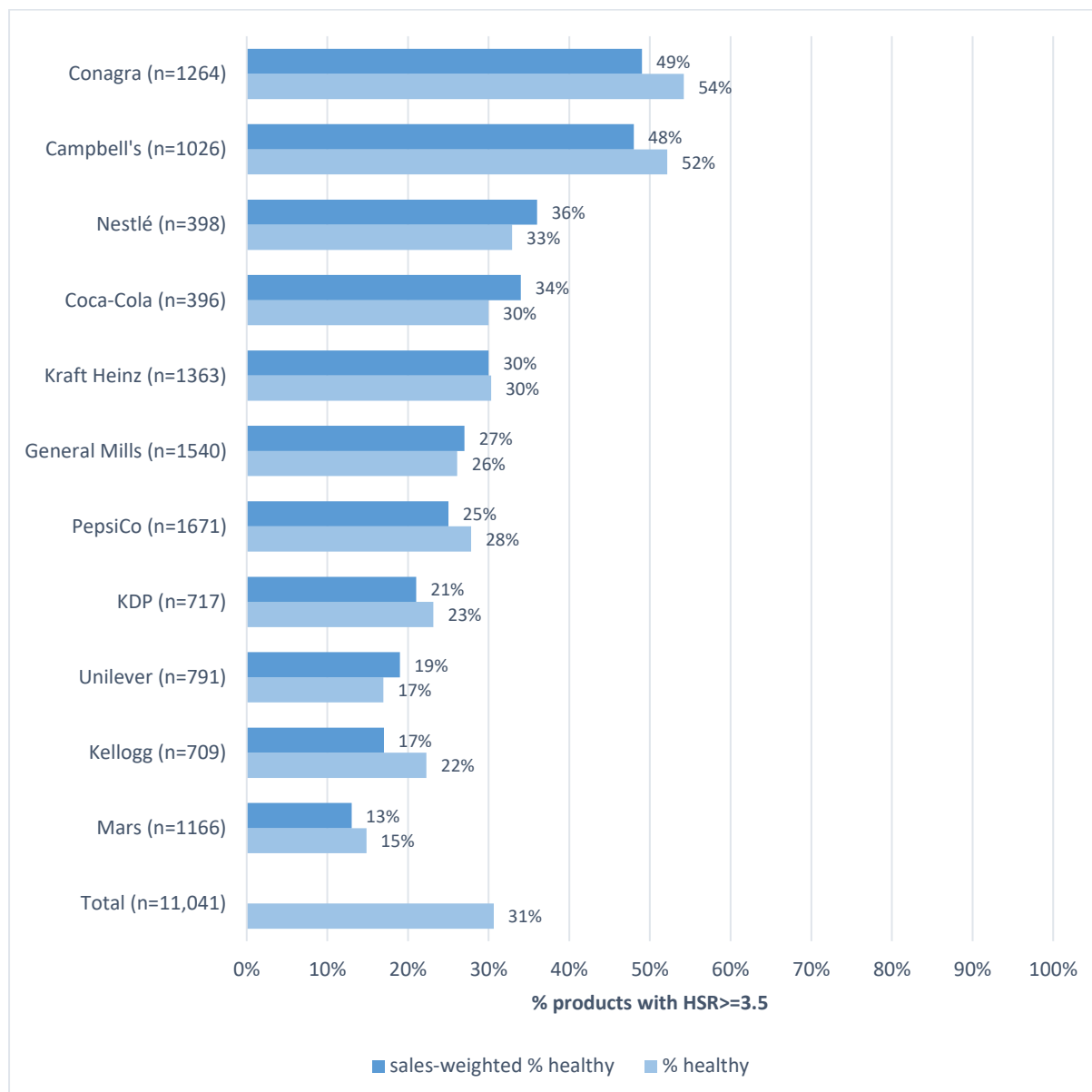
Table 5 Number of products with each Health Star Rating overall and by company

Star rating (HSR model): 3.5 stars or more = healthy product											
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	Total
Campbell's	33	38	51	74	80	215	367	143	23	2	1,026
Coca-Cola	131	15	32	43	37	19	73	13	24	9	396
Conagra	95	46	69	81	47	241	334	214	97	40	1,264
General Mills	97	246	287	195	178	135	83	201	72	46	1,540
Kellogg's	15	49	181	129	126	51	39	61	44	14	709
KDP	374	28	26	49	29	45	116	33	17	0	717
Kraft Heinz	129	117	270	215	64	155	264	118	20	11	1,363
Mars	610	146	72	22	60	83	152	14	7	0	1,166
Nestle	108	2	2	58	16	81	78	31	17	5	398
PepsiCo	213	101	248	124	196	324	264	104	47	50	1,671
Unilever	51	87	164	189	88	78	76	49	5	4	791
Total	1,856	875	1,402	1,179	921	1,427	1,846	981	373	181	11,041
% of total products	16.8%	7.9%	12.7%	10.7%	8.3%	12.9%	16.7%	8.9%	3.4%	1.6%	100.0%

Table 5 above shows the spread of results achieved by all companies across the HSR spectrum. The 11 companies assessed offered products with a range of HSRs where a large number of the products scored poorly. Just under half (48%) of all products on the market scored 2.0 stars or below. Less than a third of products (31%) were considered “healthy” with ≥ 3.5 HSR (as also shown in Figure 5).

ANALYSIS 3 and 4 Corporate rankings based upon proportion of 'healthy' products

Figure 5 Proportion of 'healthy' products and sales-weighted proportion of 'healthy' products by company - overall product portfolio (11 companies)



Less than a third (31%) of products from all manufacturers were classified as 'healthy'. Conagra had the highest proportion of its portfolio achieving a sales-weighted HSR of 3.5 or above (sales-weighted proportion of 49%) followed very closely by Campbell with 48%. No company had more than 50% of sales-weighted products receiving 3.5 HSR or above. Coca-Cola, General Mills, Nestlé and Unilever were the only companies to have an increase in the proportion of healthy products following sales-weighting. Mars by far had the lowest proportion of 'healthy' products both before and after sales-weighting was applied, due to confectionery items dominating its portfolio and sales.

Figure 6 Proportion of 'healthy' products by category

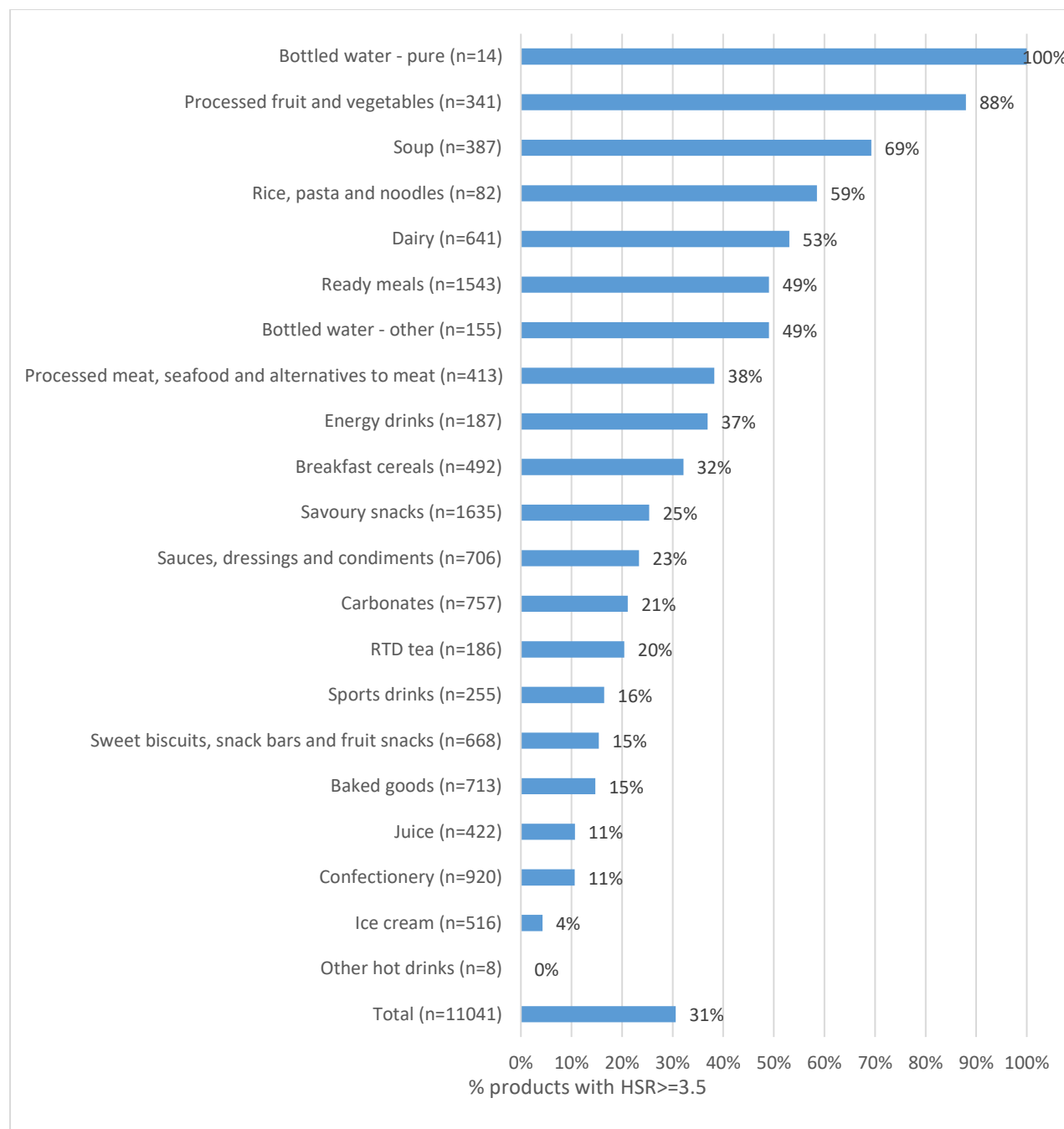


Table 6 Mean and range HSR of food products by EMI subsets

EMI subset		Mean HSR	Range HSR
FOODS	Baked goods	1.7	0.5 to 4.5
	Breakfast cereals	2.9	0.5 to 5.0
	Confectionery	1.1	0.5 to 3.5
	Dairy	3.0	0.5 to 5.0
	Ice cream	1.9	0.5 to 4.0
	Processed fruit and vegetables	4.0	3.0 to 5.0
	Processed meat, seafood and alternatives to meat	2.3	0.5 to 5.0
	Ready meals	3.0	0.5 to 5.0
	Rice, pasta and noodles	3.0	1.5 to 4.0
	Sauces, dressings and condiments	2.2	0.5 to 5.0
	Savoury snacks	2.5	0.5 to 5.0
	Soup	3.3	0.5 to 4.0
	Sweet biscuits, snack bars and fruit snacks	2.3	0.5 to 5.0

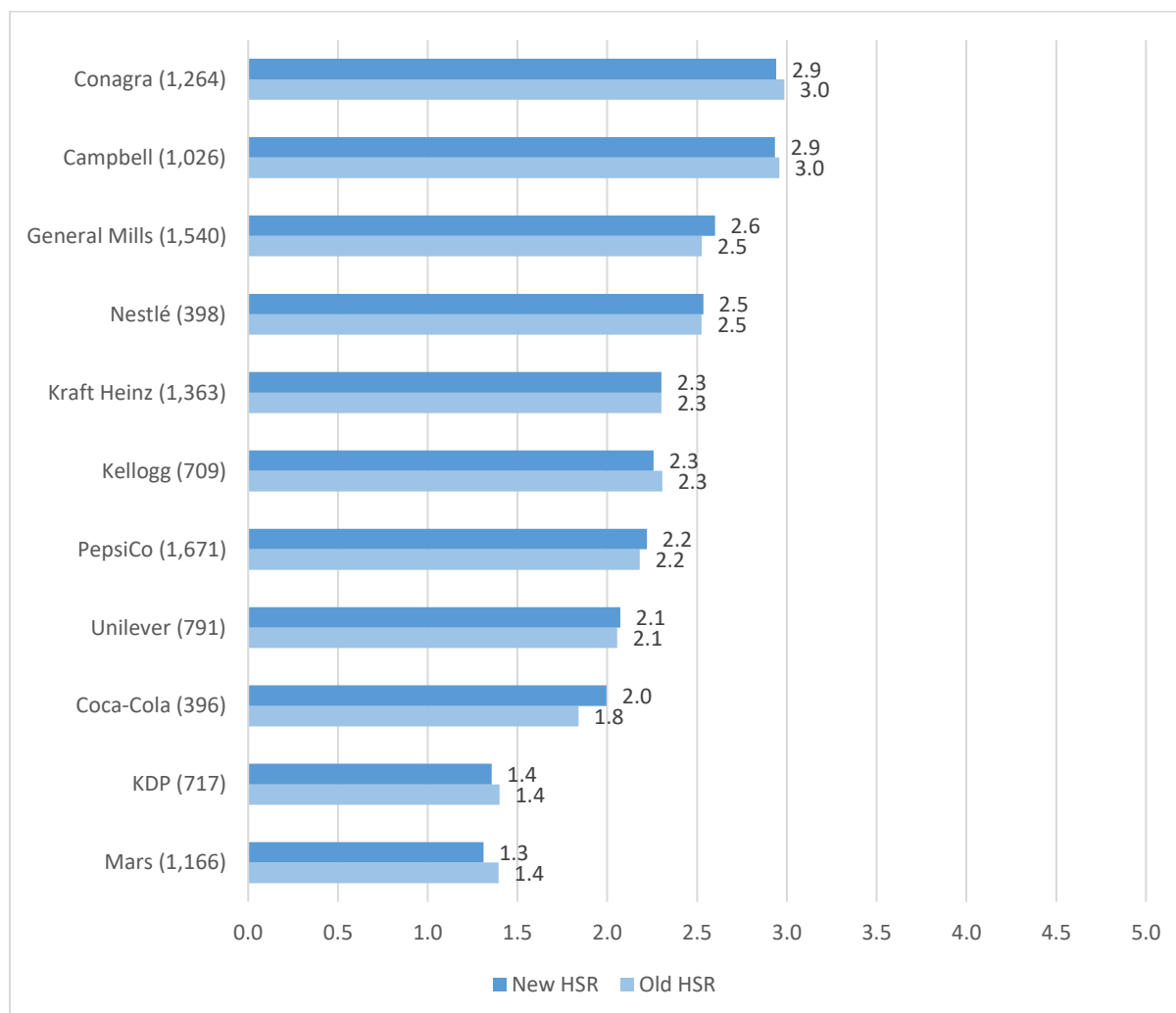
Table 7 Mean and range HSR of beverage products by EMI subsets

EMI subset		Mean HSR	Range HSR
BEVERAGES	Bottled water – other	3.2	0.5 to 4.5
	Bottled water - pure	5.0	5.0
	Carbonates	1.2	0.5 to 3.5
	Energy drinks	2.3	0.5 to 3.5
	Juice	1.8	0.5 to 4.0
	Other hot drinks	0.5	0.5
	RTD tea	2.1	0.5 to 3.5
	Sports drinks	2.1	0.5 to 3.5

As with results by company, the large range in HSR within some subsets such as *Ready meals* and *Savoury snacks* suggests that healthier formulations of these products are available on the market.

ANALYSIS 5 Changes in companies' results with the old and new HSR algorithm

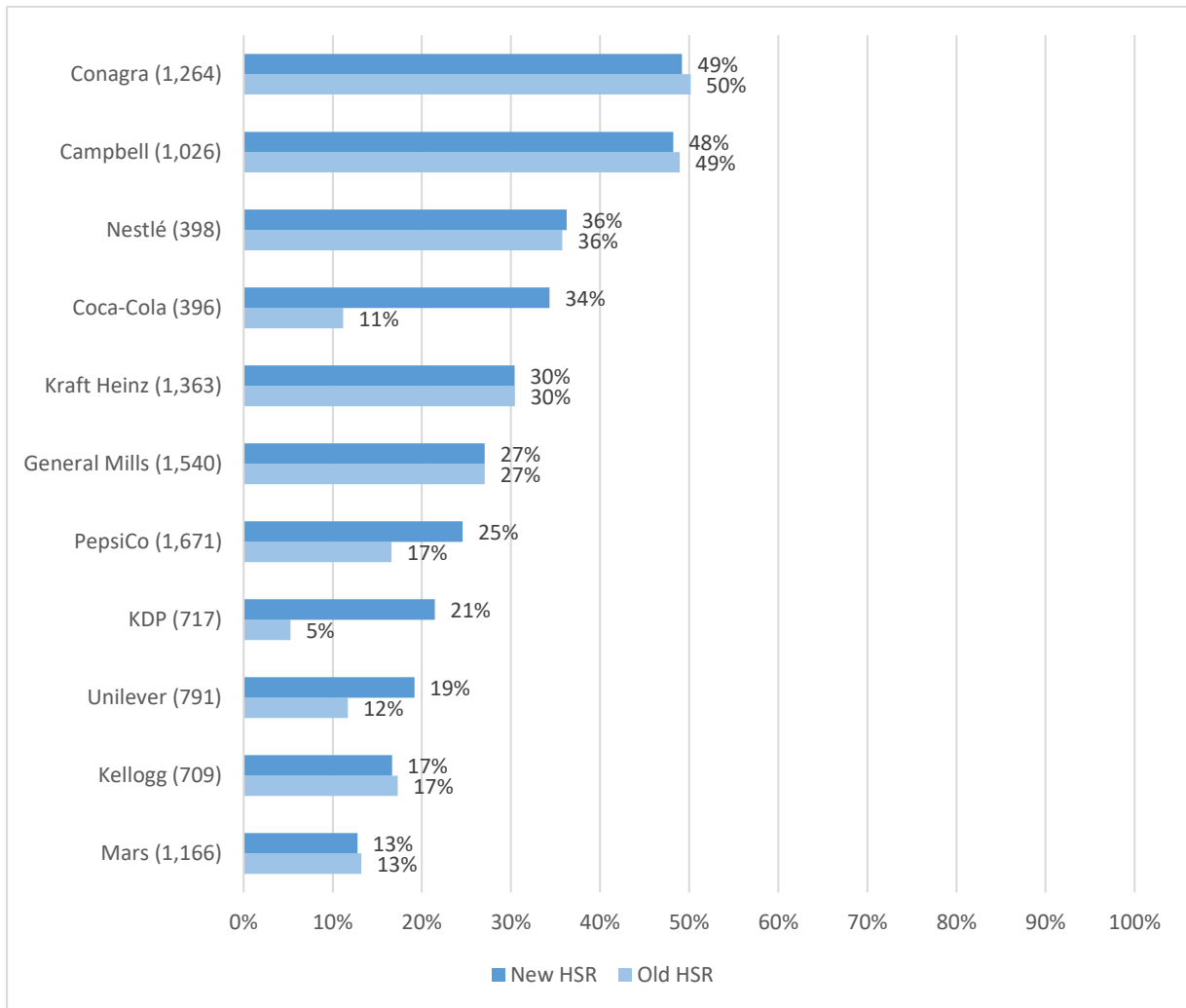
Figure 7 Changes in sales-weighted mean HSR when using the old versus new HSR algorithm



The overall results did not change significantly when using the new HSR algorithm. Figure 7 shows that Coca-Cola and General Mills had an increase in sales-weighted mean HSR when applying the new HSR algorithm compared to the older HSR algorithm, from 1.8 to 2.0 out of 5, and from 2.5 to 2.6 out of 5, respectively. Mars was the only company to have a decrease in sales-weighted mean HSR when applying the new HSR algorithm compared to the old algorithm, decreasing from 1.4 to 1.3 out of 5. Company rankings (based on sales-weighted mean HSR) did not change when using the new HSR algorithm compared to the old HSR algorithm.

When comparing sales-weighted proportion of 'healthy' products between the old and new HSR algorithms (Figure 8), Coca-Cola had the largest change, with the proportion of products considered healthy increasing from 11% to 34%. Similarly, PepsiCo, KDP and Unilever also had an increase. Overall, beverage companies appeared to have an improvement in their overall performance with the new HSR algorithm, linked to changes in the way scores are applied to unsweetened flavoured waters and zero calorie beverages.

Figure 8 Changes in the sales-weighted proportion of products considered healthy (≥ 3.5 HSR) when using the old versus new HSR algorithm



CONCLUSIONS AND INTERPRETATION

Key findings

Mean healthiness of products

- The overall mean healthiness of companies' products was low (HSR=2.3 out of 5.0) and the mean healthiness of product portfolios varied substantially between companies (1.3 for Mars to 2.9 for Conagra). Differences in mean healthiness between companies reflected primarily differences in product mix but also to a lesser extent differences in the healthiness of products within the same categories. Companies such as Mars and KDP, which make primarily products such as confectionery (Mars) and sugary drinks (KDP), generally scored poorly in each metric examined, whereas companies that sold a broader range of products such as Conagra and Campbell generally scored and ranked better.
- Estimates of the comparative healthiness of product portfolios weighted by sales changed some rankings and generally decreased the mean HSR for most companies. Only two companies (General Mills and Kraft Heinz) increased their ranking following sales-weighting, with General Mills going from 6th to 3rd place and Kraft Heinz moving from 7th to 5th place. General Mills, despite selling a large number of *Baked Goods* and *Sweet Biscuits, Snack Bars and Fruit Snacks* products, had their highest-scoring category (Dairy) responsible for the majority of healthy sales. On the other hand, PepsiCo's and Kellogg's rankings decreased following sales-weighting, indicating that a larger proportion of their portfolio's sales were due to less healthy products.

Proportions of products defined as healthy

- Less than a third of companies' products were defined as healthy (31%). The proportion of products defined as healthy varied greatly between companies (13% for Mars to 49% for Conagra). Similar to results for overall mean healthiness, companies with portfolios dominated by products such as confectionery (e.g. Mars) and snack foods (e.g. Kellogg's) scored poorly using this metric and those with portfolios dominated by categories such as ready meals and processed fruits and vegetables (e.g. Conagra) or soups (Campbell) scored better.

Impact of the new algorithm underlying the HSR

- The overall company rankings (based on sales-weighted mean HSR) did not change when using the new HSR algorithm compared to the old HSR algorithm. However, two companies had an increase in sales-weighted mean HSR when applying the new HSR algorithm compared to the older HSR algorithm. Coca-Cola increased from a mean HSR of 1.8 to 2.0 out of 5 and General Mills from 2.5 to 2.6 out of 5. Mars was the only company to have a decrease in sales-weighted mean HSR when applying the new HSR algorithm compared to the old algorithm, decreasing from 1.4 to 1.3 out of 5, likely due to stricter sodium and sugar scoring in the new HSR algorithm.
- When comparing sales-weighted proportion of 'healthy' products between the old and new HSR algorithms, Coca-Cola had the largest change, with the proportion of products considered healthy increasing from 11% to 34%. Similarly KDP also had an increase from 5% to 21%. Overall, beverage companies appeared to have an improvement in their overall performance with the new HSR algorithm, linked to changes in the way scores are applied to unsweetened flavoured waters and zero calorie beverages.. Even companies whose portfolio is dominated by beverages as well as other category types had an increase in the sales-weighted proportion of 'healthy' products. PepsiCo increase from 17% to 25% and Unilever from 12% to 19%.

Methodological limitations

The results of this research should be considered in relation to the following limitations:

Limitations of the nutrition data provided by companies. All data for this project were provided by the 11 companies. However, the quality of the data provided varied substantially, with some companies not providing all the elements required to properly calculate a valid HSR score. The problem was addressed by using proxy data unless several data points were missing. Where this was the case, products were excluded from analysis. The most likely impact of using proxy nutrient values is underestimation of the real

differences between products (because proxy values were imputed at the sub-category level), and correspondingly, therefore, underestimation of the real differences between companies.

Restriction of the analysis to 11 large companies. The assessment of 11 of the largest US food and beverage manufacturers was a pragmatic compromise designed to ensure feasibility and meaningful comparisons based upon the average nutritional composition of the majority of products made by each company. The 11 companies together represented between 30-35% of the packaged food and beverage market in the US in 2021.⁹ This strategy will not have affected the primary conclusions of the project about the relative nutritional quality of the products provided by the included companies but how the included companies compare to other smaller companies, quick service restaurants or home-cooked meals is unknown.

No consideration of serving size. Overweight and obesity can be influenced by the quantity of food people choose to consume at one sitting (portion size) and the serving size recommended on packs. This may be the case particularly for products provided in packages eaten at a single sitting (although not all such products have a serving size that corresponds to the package size). The association between serving size and portion size for products provided in packages that contain multiple servings is also not always strong. It has been argued that nutrient profiling models should include consideration of serving size but the absence of agreed national and international standards has meant that this has not proved possible to date.

Limited granularity of sales data. The 2021 sales data accessible from Euromonitor International are provided by category not by individual product. This limits the capacity to obtain robust sales-weighted estimates of metrics because it is not possible to precisely match a sales figure to an HSR value. Accordingly, for the overall sales-weighted results, the sales of the company within each category were matched to the mean HSR for all company products within that category. Erroneous results may have been generated because it is unlikely that sales volumes of every item sold by a company within a given category were the same. So, while the process should give a reasonable sales-weighted estimate of the mean healthiness of products, it is imperfect.

Recommendations for companies

- Companies need to direct investment towards improving the healthiness of their products both by changing the mix of products sold and reformulating unhealthy products to improve their nutritional quality.
- Companies need to increase the proportion of sales deriving from healthy foods relative to sales of unhealthy foods. One way this can be done is by redirecting their marketing to healthier products.
- Compile and maintain a comprehensive list of the nutrient content of all packaged food products such that necessary action to reformulate products can be identified, targets set and progress monitored.
- Reformulation should be a priority, particularly for established brands and market-leading products unlikely to be discontinued.

Recommendations for policymakers

- Compile and maintain a comprehensive list of the nutrient content of all packaged food products such that necessary action to reformulate products can be identified, targets set and progress monitored.
- A government-led national program should be implemented with haste to address the poor nutritional quality of many of the products made by the leading food and beverage manufacturers in the US market.

Recommendations for institutional investors

- Engage actively with food and beverage manufacturers to encourage them to improve the nutritional quality of their products and report annually on percentage of sales from healthier products.

⁹ ATNI estimates derived from Euromonitor International (2021) industry publications of Drinks, Food and Nutrition.

APPENDIX A – EMI subsets mapped to HSR Categories and EMI category definitions

The following table is provided to assist interpretation of results where products are categorised differently for the purpose of generating a nutrient profile outcome under the Health Star Rating to how these results are displayed in the analysis in this report.

Table A *Euromonitor International food and beverage subsets mapped to Health Star Rating Categories*

1. Non-dairy beverage	1D. Dairy Beverage	2. Non-Dairy Foods	2D. Dairy foods	3. Oils and spreads	3D. Cheese
Bottled water	Dairy	Baked goods	Dairy	Edible oils	Dairy (high calcium cheese products)**
Carbonates	(drinking milks only)	Breakfast cereals	(including cheese products not in category 3D)*		
Energy drinks		Confectionery			
Other hot drinks		Ice cream*			
Juices		Processed fruit and vegetables			
RTD tea		Processed meat, seafood and alternatives to meat			
Sports drinks		Ready meals			
		Rice, pasta and noodles			
		Sauces, dressings and condiments			
		Savoury snacks			
		Soup			
		Sweet biscuits, snack bars and fruit snacks			

* Custards, desserts, cream cheese, ice-cream and cream are not considered as dairy foods but are classified as Category 2 foods for the purpose of HSR. For further explanation see the HSR Guide for Industry <http://healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/guide-for-industry>

** Defined for the purposes of HSR as cheeses with calcium content $\geq 320\text{mg}/100\text{g}$

Table B Euromonitor International food and beverage category definitions

EMI Subset	Definition
Baked Goods	Bread, pastries, dessert mixes, frozen baked goods and cakes.
Breakfast Cereals	Ready-to-eat (RTE) and hot cereals.
Confectionery	Chocolate confectionery, sugar confectionery and gum.
Dairy	Butter and spreads, cheese, drinking milk products, yoghurt and sour milk products and other dairy.
Ice Cream	Impulse ice cream, take-home ice cream, frozen yoghurt and artisanal ice cream.
Processed Fruit and Vegetables	Processed shelf stable fruit and vegetables and processed frozen fruit and vegetables.
Processed Meat, Seafood and Alternatives to Meat	Processed meat, processed seafood and meat and seafood substitutes.
Ready Meals	Shelf stable, frozen, dried, chilled ready meals, dinner mixes, frozen pizza, chilled pizza and prepared salads.
Rice, Pasta and Noodles	Rice, noodles and pasta. Includes: Pre-packaged noodles. Excludes: Any noodles, pasta or rice bought loose, bulk and/or unpackaged. Excludes: Any noodle based ready meals, which would be tracked under ready meals.
Sauces, Dressings and Condiments	Cooking ingredients, dips, pickled products, table sauces, tomato pastes and purées, yeast-based spreads, and other sauces, dressings and condiments. It excludes table salt, baking ingredients, vinegar, and cooking cream.
Savoury Snacks	Chips/crisps, extruded snacks, tortilla/corn chips, popcorn, pretzels, nuts and other sweet and savoury snacks.
Soup	Ready-made, pre-packaged soup, regardless of format. Excludes: Liquid stocks and or stock/bouillon cubes. These are tracked in sauces, dressings and condiments, under cooking ingredients.
Sweet Biscuits, Snack Bars and Fruit Snacks	Biscuits, snack bars and fruit snacks.
Bottled Water	Still bottled water (spring, mineral & purified), carbonated bottled water (spring, mineral & purified), flavoured bottled water and functional bottled water.
Carbonates	Sweetened, non-alcoholic drinks containing carbon dioxide are included here. All carbonated products containing fruit juice (“sparkling juices”) are included here, unless they are tea-based (these are included in RTD tea) or carbonated Energy drinks, which are included in Energy Drinks. Carbonated bottled water is also excluded. Carbonates are an aggregation of cola carbonates and non-cola carbonates, whether regular or low calorie. Includes both naturally and artificially-sweetened carbonates.
Energy Drinks	These are functional drinks designed to boost energy levels. Often lightly carbonated, these contain high levels of caffeine and a number of added water-soluble vitamins, most often a selection of B vitamins including niacin,

	pantothenic acid, vitamin B6, and vitamin B12. Ingredients can also include amino acids such as taurine and glucuronolactone, as well as herbal products such as guarana and ginseng. Can be carbonated or still.
Juice	This category covers all still packaged juice obtained from fruits or vegetables by mechanical processes, reconstituted or fresh, often including pulp or fruit/vegetable puree. All unpackaged juices are excluded. Only still drinks are included here. Carbonated varieties are included in carbonates. Juice-flavoured milk drinks and fruit shakes which are primarily milk are excluded. This sector is the aggregation of 100% juice, nectars (25-99% juice content), juice drinks (up to 24% juice content), and coconut & other plant waters.
Other Hot Drinks	Flavoured Powder Drinks and Other Plant-based Powder Drinks. Products can be served hot or cold, and can be mixed with water, milk, or other liquids. Bottled, ready-to-drink flavoured milk drinks are not included.
RTD Tea	All packaged products based on brewed tea or tea extract. May be sweetened or unsweetened, carbonated or still, with a wide variety of different flavourings. May contain juice.
Sports Drinks	Isotonic, hypotonic and hypertonic sports drinks.

APPENDIX B – Results by category for each company

Table B1 Summary results by category for Campbell

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Baked Goods	133	3.2	1.0 – 4.5	65%	133	3.2	1.0 – 4.5	65%
Juice	70	2.9	1.5 – 5.0	29%	70	2.7	1.0 – 4.0	24%
Sauces, Dressings and Condiments	119	3.3	1.0 – 4.5	57%	119	3.2	1.0 – 4.5	57%
Savoury Snacks	332	2.5	0.5 – 5.0	32%	332	2.5	0.5 – 5.0	31%
Soup	372	3.4	2.5 – 4.0	70%	372	3.4	2.5 – 4.0	70%
Total	1026	3.0 (*3.0)	0.5 – 5.0	53% (*49%)	1026	3.0 (*2.9)	0.5 – 5.0	52% (*48%)

Table B2 Summary results by category for Coca-Cola

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Bottled Water - Other	55	2.0	2.0 – 2.0	0%	55	3.6	2.0 – 4.5	73%
Bottled Water - Pure	9	5.0	5.0 – 5.0	100%	9	5.0	5.0 – 5.0	100%
Carbonates	139	1.3	0.5 – 2.0	0%	139	1.4	0.5 – 3.5	28%
Juice	138	2.5	0.5 – 5.0	27%	138	1.9	0.5 – 4.0	14%
Sports Drinks	55	1.8	1.5 – 2.0	0%	55	2.2	1.0 – 3.5	20%
Total	396	2.0 (*1.8)	0.5 – 5.0	12% (*11%)	396	2.1 (*2.0)	0.5 – 5.0	30% (*34%)

Table B3 Summary results by category for Conagra

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Dairy	90	2.5	0.5 – 4.5	20%	90	2.4	0.5 – 4.5	20%
Processed Fruit and Vegetables	302	4.0	3.0 – 5.0	87%	302	4.0	3.0 – 5.0	86%
Processed Meat, Seafood and Alternatives to Meat	176	1.5	0.5 – 4.0	11%	176	1.5	0.5 – 4.0	11%
Ready Meals	541	3.3	0.5 – 5.0	63%	541	3.3	0.5 – 5.0	63%
Savoury Snacks	155	2.7	0.5 – 5.0	33%	155	2.5	0.5 – 5.0	28%
Total	1264	3.1 (*3.0)	0.5 – 5.0	55% (*50%)	1264	3.1 (*2.9)	0.5 – 5.0	54% (*49%)

Table B4 Summary results by category for General Mills

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Baked Goods	456	1.3	0.5 – 3.5	0%	456	1.2	0.5 – 3.5	0%
Breakfast Cereals	181	2.7	1.5 – 5.0	22%	181	2.6	1.5 – 5.0	20%
Dairy	343	3.3	0.5 – 5.0	59%	343	3.9	2.0 – 5.0	81%
Ready Meals	129	2.3	1.0 – 4.0	14%	129	2.2	0.5 – 4.0	13%
Sweet Biscuits, Snack Bars and Fruit Snacks	431	2.3	0.5 – 5.0	18%	431	2.3	0.5 – 5.0	16%
Total	1540	2.3 (*2.5)	0.5 – 5.0	22% (*24%)	1540	2.4 (*2.6)	0.5 – 5.0	26% (*27%)

Table B5 Summary results by category for Kellogg

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Baked Goods	124	2.2	1.0 – 4.0	15%	124	2.2	1.0 – 4.0	15%
Breakfast Cereals	187	3.0	1.0 – 5.0	35%	187	3.0	1.0 – 5.0	34%
Processed Meat, Seafood and Alternatives to Meat	75	4.0	1.0 – 5.0	96%	75	4.0	1.0 – 5.0	96%
Savoury Snacks	186	1.7	0.5 – 2.5	0%	186	1.6	0.5 – 2.5	0%
Sweet Biscuits, Snack Bars and Fruit Snacks	137	2.1	0.5 – 4.0	5%	137	2.0	0.5 – 4.0	4%
Total	709	2.5 (*2.3)	0.5 – 5.0	23% (*17%)	709	2.4 (*2.3)	0.5 – 5.0	22% (*17%)

Table B6 Summary results by category for KDP

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Bottled Water - Other	61	1.9	1.0 – 2.0	0%	61	3.2	0.5 – 4.5	36%
Carbonates	401	1.2	0.5 – 2.0	0%	401	1.2	0.5 – 3.5	21%
Juice	171	2.0	0.5 – 5.0	20%	171	1.5	0.5 – 4.0	5%
Processed Fruit and Vegetables	39	3.9	3.5 – 4.5	100%	39	3.9	3.5 – 4.5	100%
RTD Tea	45	1.7	1.0 – 2.0	0%	45	2.1	0.5 – 3.5	31%
Total	717	1.6 (*1.4)	0.5 – 5.0	10% (*5%)	717	1.6 (*1.4)	0.5 – 4.5	23% (*21%)

Table B7 Summary results by category for Kraft Heinz

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Dairy	98	2.1	0.5 – 5.0	26%	98	2.2	0.5 – 5.0	28%
Juice	43	2.1	1.5 – 5.0	14%	43	1.6	1.0 – 3.0	0%
Processed Meat, Seafood and Alternatives to Meat	162	2.4	0.5 – 4.5	41%	162	2.4	0.5 – 4.5	41%
Ready Meals	569	2.7	0.5 – 4.5	43%	569	2.7	0.5 – 4.5	43%
Sauces, Dressings and Condiments	491	2.0	0.5 – 5.0	15%	491	2.0	0.5 – 5.0	15%
Total	1363	2.4 (*2.3)	0.5 – 5.0	31% (*30%)	1363	2.3 (*2.3)	0.5 – 5.0	30% (*30%)

Table B8 Summary results by category for Mars

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Confectionery	920	1.2	0.5 – 3.5	11%	920	1.1	0.5 – 3.5	11%
Ice Cream	45	1.5	0.5 – 3.0	0%	45	1.3	0.5 – 2.5	0%
Rice, Pasta and Noodles	82	3.1	1.5 – 4.0	59%	82	3.0	1.5 – 4.0	59%
Savoury Snacks	19	0.7	0.5 – 1.5	0%	19	0.7	0.5 – 1.5	0%
Sweet Biscuits, Snack Bars and Fruit Snacks	100	3.1	2.0 – 4.5	32%	100	2.9	2.0 – 4.5	27%
Total	1166	1.5 (*1.4)	0.5 – 4.5	15% (*13%)	1166	1.4 (*1.3)	0.5 – 4.5	15% (*13%)

Table B9 Summary results by category for Nestle

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Bottled Water – Other	39	1.8	1.0 – 2.0	0%	39	2.5	0.5 – 4.5	36%
Bottled Water – Pure	5	5.0	5.0 – 5.0	100%	5	5.0	5.0 – 5.0	100%
Dairy	110	1.1	0.5 – 4.5	16%	110	1.1	0.5 – 4.5	16%
Other Hot Drinks	8	0.5	0.5 – 0.5	0%	8	0.5	0.5 – 0.5	0%
Ready Meals	236	3.0	1.5 – 4.5	40%	236	3.0	1.5 – 4.5	40%
Total	398	2.3 (*2.5)	0.5 – 5.0	29% (*36%)	398	2.4 (*2.5)	0.5 – 5.0	33% (*36%)

Table B10 Summary results by category for PepsiCo

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Breakfast Cereal	124	3.3	0.5 – 5.0	52%	124	3.2	0.5 – 5.0	48%
Carbonates	217	1.2	0.5 – 2.0	0%	217	1.1	0.5 – 3.5	18%
Energy Drinks	187	1.8	0.5 – 3.0	0%	187	2.3	0.5 – 3.5	37%
Savoury Snacks	943	2.8	0.5 – 5.0	29%	943	2.7	0.5 – 5.0	28%
Sports Drinks	200	1.7	0.5 – 2.5	0%	200	2.1	0.5 – 3.5	16%
Total	1671	2.4 (*2.2)	0.5 – 5.0	20% (*17%)	1671	2.5 (*2.2)	0.5 – 5.0	28% (*25%)

Table B11 Summary results by category for Unilever

EMI subset	Old Health Star Rating				New Health Star Rating			
	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)	No. products	Mean HSR (*sales weighted)	HSR range	%>=3.5 HSR (*sales-weighted)
Ice Cream	471	2.1	0.5 – 4.0	5%	471	2.0	0.5 – 4.0	5%
Ready Meals	141	3.7	1.0 – 2.5	43%	141	3.7	1.0 – 3.5	43%
RTD Tea	68	1.9	0.5 – 4.5	0%	68	2.1	0.5 – 4.5	35%
Sauces, Dressings and Condiments	96	1.8	0.5 – 5.0	22%	96	1.8	0.5 – 5.0	22%
Soup	15	2.3	0.5 – 3.5	47%	15	2.2	0.5 – 3.5	47%
Total	791	2.1 (*2.1)	0.5 – 5.0	14% (*12%)	791	2.1 (*2.1)	0.5 – 5.0	17% (*19%)