

Front-of-package product labels: influences of varying nutritional food labels on parental decisions

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Abstract

Purpose – This research aims to examine the effects of varying front-of-package (FOP) nutrition information type on parents' food product choices for children.

Design/methodology/approach – A 3(FOP nutrition information: nutrient specific system vs food group information system vs summary indicator system) × 3(Perceived healthiness of the product: high vs moderate vs low) mixed-design experiment and content analysis were conducted to test the hypotheses.

Findings – Findings suggest that summary indicator systems were effective in positively impacting parents' choices for healthier food options, however not as effective as food group information systems – which includes specific nutrient content claims complementing less familiar health nutrient symbols.

Originality/value – Implications for marketers, consumer welfare advocates and product brand managers are provided.

Keywords Product and brand management, Front-of-package labelling, Parental food choices, Decision-making processes, Food nutrition labelling, Consumer information format

Paper type Research paper

An executive summary for managers and executive readers can be found at the end of this article.

Introduction

Nutrition marketing is referred to as “any marketing (including food labels and health claims) of food or beverages using health or nutrition information beyond minimum requirements” (Colby *et al.*, 2010, p. 92). Minimal requirements on all packaged food items include the Nutrition Facts Panel. However, if marketers and/or manufacturers are interested in including additional nutrient and health claims, they must follow within the guidelines of the Food and Drug Administration (FDA). The FDA currently regulates nutrition labelling on all packaged food items (i.e. nutrition facts panels, nutrient content claims and health claims). One form of nutrition marketing is known as front-of-package (FOP) labelling, which displays nutrient and/or objective health claims on the front of the package

(Health Focus International, 2011). Such labelling has become increasingly important to consumers as they seek to gain information regarding products when making choices (Bui *et al.*, 2008; Howlett *et al.*, 2012; Len, 1997). More recently, FOP nutrition signposting has become a very important avenue that marketers use to communicate the healthiness of the product because research shows that consumers often limit their search for nutrition and health-related information to the easily accessible FOP claims, ignoring the comprehensive Nutritional Facts Panel which provides the serving size and weights of nutrient contents (e.g. fat, carbohydrate, protein) in a serving and the percentages the nutritional content represent daily Recommended Dietary Allowance (RDA) for a 2,000-Calorie diet – hence the emergence of both FOP and qualified health claims (i.e. health claims that have been authorized by the FDA to have credible scientific evidence supporting the relationship between the food and the health-related condition) (Bone and France, 2009; Keller *et al.*, 1997; Naylor *et al.*, 2009; Roe *et al.*, 1999). Further, given the amount of interest among product and brand managers regarding a better understanding of the influence of both

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food and labelling of food products on judgement and decision-making (Anselmsson *et al.*, 2007; Chaniotakis *et al.*, 2010; Gabay *et al.*, 2009; Lebel and Cooke, 2008; Mather *et al.*, 2005; Shannon and Mandhachitara, 2008), this research extends current product nutrition and labelling research (Bui *et al.*, 2008) as well as its applications for product and brand managers.

FOP labelling began in the late 1980s and early 1990s when non-profit groups such as the American Health Association (AHA) placed guides on the front of packages that attempted to inform consumers about healthy food choices and eating a healthy diet (Wartella *et al.*, 2010). Realizing the success of early FOP programs, some retailers and manufacturers developed their own FOP labels including Wegmans Supermarkets (Wellness Keys in 2002), Pepsi-Cola (Smart Spot in 2004), and Kraft (Sensible Solution in 2006). Food retailers and manufacturers continued to develop their own FOP labels with different methodologies and to target different consumer segments across age, education, socioeconomic profiles, etc. The overall purpose of FOP labels is to provide consumers with more useful information than traditional nutrition panels when making choices for themselves and their families (Institute of Medicine, 2010). However, confusion emerged due to FOP labels not being formulated from one source of information but rather being based on various sources of information from the FDA and USDA.

Due to both initiatives of seeking better understanding consumers' consumption decision-making in order to alleviate the social issues attributed to the escalation of obesity (Kemp *et al.*, 2011) and consumer confusion since the implementation of various forms of FOP labels in the market – as FOP nutrition labels are intended to help consumers make more informed choices about food. More recent research has advanced to examining the impacts of FOP labels on consumer behavior. While some research has examined how consumers process, understand and estimate nutrient content based on the provision of FOP nutrient labels (Roberto *et al.*, 2012a, b) and the impacts of FOP nutrient labels on consumer attitudes, purchase intentions and consumption behavior (Andrews *et al.*, 2001; Chandon and Wansink, 2007; Steenhuis *et al.*, 2010), other research has explored the overall economics of food labelling interventions for consumers (Crutchfield *et al.*, 2001). More recently, varying FOP nutrition labels such as Facts Up Front and individual Smart Choices FOP labels have been examined to provide insight into consumer evaluation of food products and consumption decisions (Roberto *et al.*, 2012a, b). However, there is sparse research examining the intersections of providing FOP with the provision of additional nutrient information and/or health claims. To date, only Facts Up Front FOP nutrition labels have been examined when there is a proliferation of FOP nutrition labels in the consumer market (Roberto *et al.*, 2012a, b). As such, this research seeks to contribute to the marketing literature by continuing to explore the impacts of varying types of FOP labels on consumer intended choices (see Table I).

The Institute of Medicine (2010) identifies three distinct types of FOP labels most widely used on the market: nutrient-specific systems involve a symbol representing a nutrient and

may display the amount *per serving* (e.g. a symbol representing whole grain content); food group information systems communicate nutrient or ingredient content (e.g. whole grain symbol complemented by a “Whole Grain Guaranteed” verbal claim); and summary indicator systems (e.g. Smart Choices Made Easy symbol, which uses a single icon representing the healthiness of the product without specifying individual nutrients or ingredients (see Appendix 1, Figure A1, for examples)). Thus, the purpose of this exploratory research is to compare the impact of the three forms of front-of-package labels on parents' food choices for their children. Specifically:

- 1 We propose (and test) that food group information systems and summary indicator systems will be more effective in increasing healthy product choices than nutrient-specific systems.
- 2 We also propose (and test) that the previous differential effects among the three types of front-of-packaging labels will be found both for healthy and unhealthy products.

Theoretical foundation

Grunert and Wills (2007) advance the Hierarchy of Effects framework for the stages necessary for processing nutrition information. Consumers must be aware of and understand the nutrient and health-related claims before any inferences can be formed about the product's overall healthiness. After inferences and health evaluations of the product are formed, such information processing is expected to influence intended consumption and purchasing decisions (Bui *et al.*, 2008; Cook *et al.*, 2011; Garretson and Burton, 2000).

However, not all nutrition information is equally likely to be used in product evaluation and choice. Consumers are more likely to utilize nutrition information when it addresses specific information needs (Verbeke, 2005) and/or when it is displayed in a way that is easy to process (Moorman, 1990; Roe *et al.*, 1999). Summary indicator systems – such as the Smart Choices Made Easy symbol (see Appendix 1, Figure A1[3]) – address specific consumer information needs and facilitate information processing. With summary indicator systems, consumers do not need to interpret nutrient content information and, from it, to make inferences about the healthiness of the product. This form of FOP information makes the healthiness claim explicit, thereby satisfying the information search and makes the FOP message easier to process.

Food group information systems – such as the Whole Grain symbol complemented by the Whole Grain Guaranteed verbal claim displayed in Appendix 1, Figure A1[2] – also facilitate the processing of the nutrition information. Specifically, consumers processing a nutrient-specific system – such as the Whole Grain symbol alone (see Appendix 1, Figure A1[1]) – need to interpret the image representing whole grain in order to make an inference about the nutrient content of the food option and then make another inference regarding the healthiness of the product. In contrast, consumers processing the Whole Grain symbol plus Whole Grain Guaranteed food group information system do not need to interpret the symbol in order to make nutrient content and healthiness inferences. Furthermore, presenting a

Table I FOP nutrition label research in marketing

Independent variables	Dependent variables	Findings	Authors
Varying FOP Labels (i.e. No labels; Traffic Light; Traffic Light + protein and fibre info.; Facts Up Front; and Facts Up Front + info. on "nutrients to encourage")	Consumer Understanding; Nutrition Knowledge; Label Perceptions	Subjects in the traffic light FOP conditions had a better understanding of nutrition information (i.e. nutrition knowledge and label perceptions) than those viewing the Facts Up Front FOP nutrition labels	Roberto <i>et al.</i> , 2012a
Smart Choices FOP Labels	Nutrient Estimates; Consumption Behaviour	Subjects in the Smart Choices FOP condition were better able to estimate caloric content per serving. However, Smart Choices FOP has no impact on consumption decisions	Roberto <i>et al.</i> , 2012b
Smart Choices FOP Labels	Product Attitudes; Purchase Intentions	Subjects in the Smart Choices FOP conditions reported more favourable attitudes and purchase intentions for the food products viewed	Andrews <i>et al.</i> , 2001
Smart Choices FOP Labels	Food Intake	Smart choices logo has no effect on increasing consumption of chocolate cake	Steenhuis <i>et al.</i> , 2010
Low-Fat FOP Labels	Food Intake	Low-fat FOP labels lead to overconsumption of foods	Chandon and Wansink, 2007

verbal and non-verbal stimulus together enhances information processing more than presenting either stimulus alone (Anderson and Bower, 1973). Because of their ease of processing, summary indicator systems and food group information systems are likely to be more effective in stimulating product choice than nutrient-specific systems. Formally:

- H1. Compared to a nutrient-specific system, a summary indicator system will increase healthy consumer choice for (a) healthy options and (b) unhealthy options.
- H2. Compared to a nutrient-specific system, a food group information system will increase healthy consumer choice for (a) healthy options and (b) unhealthy options.

Methodology

We conducted a 3 (FOP nutrition information: nutrient-specific system vs food group information system vs summary indicator system) \times 3 (Perceived healthiness of the product: high vs moderate vs low) mixed-design experiment, where the FOP nutrition information served as the between-subjects variable and the product's perceived healthiness was the within-subjects variable.

We selected breakfast cereals as the stimulus for the experiment and conducted an online pilot study to identify cereals varying in perceived healthiness (see Appendix 2). A convenience sample of 70 undergraduate business students participated in the pilot study in return for extra credit. See Appendix 3 for the measure of perceived product healthiness, which demonstrated high reliability with Cronbach's alpha ranging from 0.94 to 0.97. The six cereals were rated on perceived healthiness from the healthiest to the least healthy as follows: (1) Shredded Wheat ($M = 5.93$); (2) Raisin Bran ($M = 5.82$); (3) Corn Flakes ($M = 5.26$); (4) Toasted Oats ($M = 5.26$); (5) Fruit Kickers ($M = 2.39$); and (6) Cocoa Crispy ($M = 2.01$). For

use in the main experiment, we selected the healthiest cereal (Shredded Wheat), the least healthy cereal (Coco Crispy), and a moderately healthy cereal (Toasted Oats). A repeated-measures ANOVA revealed that Shredded Wheat was evaluated as significantly healthier than Toasted Oats ($F(1, 68) = 31.81, p < 0.001$) and Toasted Oats was evaluated as healthier than Coco Crispy ($F(1, 68) = 362.66, p < 0.001$). We selected only three cereals, two of which are at the extremes of healthiness, because our research is exploratory and our objective is to establish the existence of effects.

Subjects

Upper level marketing students trained in marketing research methods and data collection served as data collectors for the sample of participants. Participants were recruited using quota convenience sampling as previously utilized in marketing research (Jones *et al.*, 2006). Respondents were pre-screened to ensure that they met the criteria of being a current parent to at least one or more children the age of 15 or younger – as children under this age category are less likely to make food choices from themselves at this age. From the pre-screening, a total of 220 parents residing in the US fulfilled this criterion and thus participated in the main experiment. The sample was 77.29 percent female and 22.71 percent male with an average age of 40, ranging from 20 to 63. The female to male ratio for the sample is appropriate as females tend to be the primary person making household food decisions. The participants were 60.00 percent Caucasian, 15.61 percent Hispanic, 12.20 percent Asian/Pacific Islander, 8.29 percent Black/African American, and 3.90 percent other race/ethnicity, approximately mirroring the ethnic composition of the US

Procedure and measures

Respondents completed online survey and the assignment of the respondents to the FOP information conditions was randomized. First, each participant saw the three cereal

boxes. Because the FOP information was manipulated between subjects, for each participant, all cereal boxes featured the same FOP information – either a Whole Grain symbol (nutrient-specific system), the Smart Choices Made Easy symbol (summary indicator system), or the Whole Grain symbol and the “Whole Grain Guaranteed” nutrient claim next to it (food group information system) (see Appendix 1, Figure A1). Then participants were asked to hypothetically select a cereal for their child(ren) and rate their attitude toward nutrition information on food packaging (see Appendix 3 for the nutrition information attitude scale). Next, the three forms of FOP nutrition information were displayed to all participants irrespective of their FOP information condition, and the respondents were asked to write their open-ended thoughts about those forms of FOP nutrition information. The manipulation check for the product’s perceived healthiness was completed last. Each participant evaluated the healthiness of the three cereals on the same three-item scaled measure that was used in the pre-test (see Appendix 3, Cronbach’s alpha ranging from 0.97 to 0.98).

Manipulation check

A 3 (Perceived healthiness of the product) \times 3 (FOP nutrition information) repeated-measures ANOVA was conducted in SAS 9.2, where the three manipulation check measures (one for each cereal) were the dependent measures. Our manipulation of the product’s perceived healthiness was successful (Wilks’ Lambda = 0.217, $F(2, 203) = 365.40$, $p < 0.0001$). Contrasts revealed that the Shredded Wheat cereal was evaluated as significantly healthier than the Toasted Oats cereal ($F(1, 204) = 68.53$, $p < 0.0001$, 5.65 vs 5.09). Toasted Oats, in turn, was evaluated as significantly healthier than Coco Crispy ($F(1, 204) = 635.99$, $p < 0.0001$, 5.09 vs 2.60). The FOP nutrition information had no main or interaction effects on the manipulation check ($F \leq 0.55$, $p > 0.1$).

Results

A conditional logit model was evaluated in SAS 9.2 (Allison, 2003). A conditional logit model is a particular type of choice model where explanatory variables include attributes of choice alternatives in addition to respondent characteristics such as attitude (Allison, 2003). Respondents’ attitude about the use of nutrition information on food packages was included in the model as a covariate. First, we examined the likelihood ratio test, which was significant ($\chi^2(8) = 80.30$, $p < 0.0001$), suggesting the existence of differences in choice. Table II shows the tests for the individual effects. The moderately healthy product serves as the referent level for the healthiness variable, and the Whole Grain symbol featured alone (the nutrient-specific system) is the referent level for the FOP nutrition information variable. When the nutrient-specific system was used, the moderately healthy product was more likely to be selected than either the healthy or the unhealthy products ($\chi^2(1) = 12.03$ and 11.92 respectively, all $p < 0.001$). Specifically, the hazard ratio of .08 shows that for every 100 times that the moderately healthy product was selected, the healthy product was selected eight times.

Analogously, for every 100 times that the moderately healthy product was selected, the unhealthy product was selected 30 times (hazard ratio = 0.30).

We found that the FOP nutrition information makes a difference for the healthy product but not for the unhealthy product. Compared to the nutrient-specific system (the Whole Grain symbol featured alone), the summary information symbol (the Smart Choices Made Easy symbol) increases 3.46 times the likelihood that the healthy product will be selected ($\chi^2(1) = 3.88$, $p < 0.05$) thereby supporting *H1a*. The greatest benefit is offered by the presence of a food group information system. Compared to the nutrient-specific system, the food group information system (the Whole Grain symbol complemented by the “Whole Grain Guaranteed” verbal claim) increases 5.48 times the likelihood that the healthy product will be selected, supporting *H2a* ($\chi^2(1) = 7.86$, $p < 0.01$). Compared to the nutrient-specific system, the summary indicator symbol and the food group information system double the chance that an unhealthy product will be selected (1.90 and 1.95 respectively) but these improvements were not significant, disconfirming *H1b* and *H2b* ($\chi^2(1) = 2.56$ and 2.73 respectively, all $p > 0.05$).

Open-ended responses

Two coders – one male and one female adult (non-students) – who were unfamiliar with the objectives of the study were asked to independently code participants’ free responses regarding their perceptions of the three forms of FOP nutrition information (see Table III). The two coders differed with respect to age, ethnic background, and education thereby providing a diversity of perspectives to the coding task. Because of the exploratory objective of this research, we refrained from imposing an a priori structure on the data by suggesting content categories to the coders – the content categories were determined entirely by the coders. We adopted the procedure described by Kaltcheva and Weitz (2006). First, each coder independently coded a subset of the responses to determine a set of relevant content categories. Next, through discussion, the two coders established a common set of content categories. Then, each coder used the established common categorization scheme and independently coded all responses. The coders achieved 90 percent agreement. Disagreements were resolved through discussion.

The Whole Grain symbol plus “Whole Grain Guaranteed” food group information system was evaluated most positively informative and guaranteeing the featured claim. The Smart Choices summary information system was seen as signifying a healthy product but as uninformative. The Whole Grain nutrient-specific symbol was seen as specifying a nutrient content but, similar to the summary information system, it was seen as uninformative. By identifying the reasons that underlie the effectiveness of the Whole Grain symbol plus “Whole Grain Guaranteed” food group information system and the somewhat lower impact of the Smart Choices summary information system, these results shed light on the support we found for *H1a* and *H2a*.

Table II Consumer choice as a function of perceived product healthiness and FOP nutrition information

Effect	Parameter estimate	Standard Error	Chi Square	p-value	Hazard Ratio
<i>Product healthiness</i>					
High healthiness	−2.33	0.67	12.03	<0.001	0.08
Low healthiness	−1.63	0.47	11.92	<0.001	0.30
<i>FOP Label</i>					
Summary indicator vs Nutrient-specific (High healthiness)	1.24	0.63	3.88	<0.05	3.46
Food group vs Nutrient-specific (High healthiness)	1.70	0.61	7.86	<0.01	5.48
Summary indicator vs Nutrient-specific (Low healthiness)	0.64	0.40	2.56	ns	1.90
Food group vs Nutrient-specific (Low healthiness)	0.67	0.40	2.73	ns	1.95
<i>Product healthiness × Nutrition information attitude</i>					
High healthiness × Attitude	−0.06	0.11	0.25	ns	
Low healthiness × Attitude	0.10	0.09	1.24	ns	

Notes: Likelihood ratio test: $\chi^2(8)=80.30$, $p < 0.0001$

Table III Perceptions of the three forms of front-of-packaging nutrition information

Category	Nutrient-specific system (%)		Summary indicator system (%)		Food group information system (%)		Referent unspecified (%)		Total	(%)
Informative	5	7	6	9	45	38	8	7	59	13
Uninformative	21	28	34	49	9	8	63	51	117	26
Healthy product	3	4	27	39	14	12	21	17	62	14
Grain content	45	61	3	4	50	42	31	25	89	20
Total	74	100	70	100	118	100	123	100	451	100

Notes: The numbers in the (%) columns are percentages of the column totals. For example, in the Nutrient-specific system column, 7 percent represents five out of the total 74

Conclusion and implications for product brand managers

This research examined the effects of the FOP label on the quality of parents' food choices for their children. Particularly examining the effectiveness of food industry leaders' nutrition marketing efforts to encourage sales by highlighting favorable nutritional information through the provision of health and nutrient content claims, we compared the influence of the three FOP label types on choice: nutrition-specific systems (a Whole Grain symbol), summary indicator systems (the Smart Choices Made Easy symbol), and food group information systems (a Whole Grain symbol complemented by a "Whole Grain Guaranteed" verbal claim). Specifically, we sought to better understand parental decision-making processes with reference to the provision of varying FOP labels to shed light on potentially effective uses of such product labels and claims to encourage healthier food options for children. Further enrichment of our findings emerged through open-ended responses by parents that were content analysed, which provided greater insights into underlying reasons for the quality of parental food choices for children.

As suggested by Grunert and Wills (2007) Hierarchy of Effects framework for the processing of nutrition information, along with previous research indicating the effectiveness of providing simpler processing cues of nutrition information (Moorman, 1990; Roe *et al.*, 1999; Verbeke, 2005), our findings show that parents are more likely to choose healthier

options for their children when a food group information system is utilized, even over more familiar summary indicator systems. Summary indicator systems, such as "Smart Choice Made Easy," were effective in positively impacting parents' choices for healthier food options; however, they were not as effective as food group information systems such as specific nutrient content claims complementing a nutrient symbol.

The importance of nutrition marketing complemented with specific product labels and nutrient claims – especially for healthier food options suitable for children – is a noteworthy tool for potentially reducing the rising childhood obesity problem (CDC, 2010) by encouraging parents to choose healthier food choices for their children. Product labelling of food group information systems increases healthier choice options, even when the option is considered were deemed very healthy overall. Underscoring the significant effects of the provision of product labels of specific nutrient claims, regulators requiring the provision of such product claims on healthier food options for children should influence parents to deliberate over choosing healthier foods for their children. Per our findings, we establish that the provision of specific nutrient claims is more effective at persuading parents to choose healthier foods for children. As regulators, mandating product labels with specific nutrient claims for healthier options over other product claims can help encourage healthier choices because the mere stimuli of a specific nutrient claim elicits more healthful deliberations over product choices. However, voluntary efforts toward

promotions of healthy nutrients by food product brand managers are more likely to result in greater immediate impact than awaiting proposed nutrition marketing regulations. Social marketing efforts by both food product brand managers and consumer welfare advocates can further educate parents on the importance of considering product labels and nutrient contents on packaged foods for children. Given that nutrient content claims are not currently regulated by the FDA, it is in most stakeholders' interest to promote favorable nutrients using specific product labels and nutrient claims on healthier food options when targeting children. As parents serve as gatekeepers to what children consume, the availability of food group information systems may help in the efforts toward fighting childhood obesity.

Limitations and future research

We acknowledge the limitations of our study, as we did not examine different placements of the verbal nutrient content claim. It would be valuable to determine if the nutrient content claim's possible location on the FOP (e.g. close to or far from the nutrient symbol) may have an effect on overall product evaluations. For example, it may be possible that if the nutrient claim is located at a sufficient distance from the nutrient symbol, the two may be disassociated such that each may be believed to represent different aspects of the product's healthiness. A further limitation is that we used convenience sampling for our research. Additionally, because of the exploratory nature of the research, we could not formulate expectations regarding effect sizes and therefore we were not able to conduct power analyses of our test.

Another limitation of this study is that the product range was limited to only breakfast cereals. More research is needed to replicate this study with other products to enhance the generalizability of these findings. Although parameter estimates and hazard ratios indicate appropriate directionality of effects, we did not find significant effects for the attenuation of unhealthier choice options as suggested by previous research (Andrews *et al.*, 2009; Wansink and Chandon, 2006). The reason for this weaker effect may be that our unhealthy option (Coco Crispy) was seen as too unhealthy, and therefore FOP nutrition information was not sufficient to convince customers seeking a compromise to switch from the moderately healthy option (Toasted Oats) to Coco Crispy. As noted previously, this research is exploratory and our objective was to establish the existence of effects. Further research using a wider range of healthiness options will be needed to identify the boundaries of the effects of food group information and summary indicator systems product labels.

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Appendix 1

Figure A1 Front-of-packaging (FOP) label types and reference examples



1. Nutrient-specific systems: a Whole Grain symbol



2. Food group information systems: a Whole Grain information system



3. Summary indicator systems: The Smart Choices Made Easy symbol

Appendix 2

Figure A2 Pilot study stimuli



Appendix 3. Measurement scales

Perceived Product Healthiness (Cronbach’s α range from 0.94 to 0.97 in the pre-test and from 0.97 to 0.98 in the main study)

Please rate the ... cereal.

- ___ Poor source of nutrients vs Excellent source of nutrients.
- ___ Not nutritious vs Very nutritious.
- ___ Not healthy vs Very healthy.

Attitude Toward Nutrition Information on Food Packaging (Cronbach’s $\alpha = 0.94$)

What is your overall attitude toward the health symbols used on consumer food packages?

- ___ Worthless vs Valuable.
- ___ Bad vs Good.
- ___ Unimportant vs Important.

Notes: Both measures were completed on seven-point scales.

Executive summary and implications for managers and executives

This summary has been provided to allow managers and executives a rapid appreciation of the content of this article. Those with a particular interest in the topic covered may then read the article in toto to take advantage of the more comprehensive description of the research undertaken and its results to get the full benefits of the material present.

It is a legal requirement in the US that packaged food items display a Nutrition Facts Panel to provide consumers with extensive details about such as fat, carbohydrate, protein and other nutrients *per serving* of the food. Recommended Dietary Allowance (RDA) details are also included to show consumers what percentage of each nutrient is needed to eat healthily.

In addition to these minimum requirements, more marketers and food manufacturers are seeking to incorporate extra nutrition information as a means of promoting their products. Those pursuing this strategy must comply with requirements established by the Food and Drug Administration (FDA) to illustrate that such details are scientifically grounded and thus objective.

One option for such firms is to market their products using front-of-package (FOP) labeling. Claims regarding the health and/or nutritional value of the product are conveyed on the label in less comprehensive detail than is found on the statutory Nutrition Facts Panel.

The late 1980s was when FOP labeling first emerged. Various non-profit organizations in the US used this method in an attempt to inform consumers and persuade them to eat more healthily. Several leading manufacturers and retailers witnessed the effectiveness of such campaigns and were inspired to create their own FOP labels. However, no universal system was in place as the methods differed according to the demographic and consumer characteristics of each target group. That information originated from multiple sources within the FDA and the US Department of Agriculture (USDA) heightened the confusion.

Recent research has included some investigation how consumers respond to FOP nutrition labels. This includes processing and understanding the information provided and the impact on attitude, purchase intentions and actual consumption. Minimal analysis of different types of FOP label has also been conducted. The most common labels have been classified into three separate types:

- 1 Nutrient-specific systems. These labels use symbols to represent nutrients and can also show the quantity per serving. One instance would be a symbol to signify whole grain content;
- 2 Food group information systems which convey nutrient or ingredient content. Use of a whole grain symbol accompanied by a verbal claim that whole grain is guaranteed is an example; and
- 3 Summary indicator systems. This is a simplified process whereby a symbol is used to denote product healthiness. Ingredients and nutrients are not specified. A “Smart Choices Made Easy” symbol is one possibility here.

It has been shown previously that, in order to evaluate the healthiness of a product, consumers must be able to understand the nutrient information provided. Various studies suggest that not all these details are processed equally. Important factors in this respect are whether or not the consumer requires particular information and the ease in which it can be interpreted. A key assumption from this is that the type of FOP label used is likely to determine what the consumer will infer about product healthiness and how it might impact on the subsequent purchase decisions.

The present study explores these issues further with 220 parents of children aged up to 15 and living in the US. Mean age of subjects was 40 and females accounted for 77.29 percent of the sample. Since females usually make the majority of decisions about food purchases in the household, this gender bias was considered appropriate.

A pretest was conducted to rate the healthiness of six breakfast cereals. Following this, Shredded Wheat, Coco Crispy and Toasted Oats were included in the main study to accordingly reflect healthiest, unhealthiest and moderately healthy cereals. Participants completed an online survey in which they were randomly exposed to one of the three FOP label types. The next task was to select one of the stimulus cereals and evaluate the nutrition information on the packaging. Subjects then commented on the information on all three FOP labels and scored each cereal on its perceived healthiness.

Data analysis revealed that:

- the summary indicator system was considerably likelier than the nutrient-specific system to persuade consumers to choose a healthy product; and
- likelihood of selecting a healthy product was appreciably greater using the food group information system rather than the nutrient-specific system.

Similar expectations regarding the probably of an unhealthy product being preferred were evident although not statistically significant.

Responses about how subjects perceive the three types to FOP nutrition information were then coded independently by two adults and a “common set of content categories” was eventually formed. From this coding, it was determined that participants:

- regarded the food group information system as most instructive and were assured by the nutrition and/or healthiness claims made on the label; and
- felt the summary information system and nutrient-specific systems were uninformative, despite respectively acting to signify product healthiness and nutrient content.

In earlier work, scholars proposed a hierarchy of effects when nutrition information is processed. The findings here provide further support for this claim. It appears that the likelihood of parents selecting healthy food products for their children is greatest when a food group information system like the Whole Grain symbol supported by Whole Grain Guaranteed verbal claim is used. Parents are also influenced by Smart Choice Made Easy and other summary indicator systems. But despite their simplicity, these FOP labels appear less effective than nutrient-specific systems featuring the Whole Grain symbol on its own.

Patino *et al.* believe that more appropriate labeling can help tackle rising concerns over childhood obesity. They argue that food group information systems prompt healthy choices to be made or the selection of the least unhealthy in situations where no true healthy options are available.

It is pointed out that mandatory labels containing specific nutrient information could prompt healthier eating. But the authors urge food product brand managers to take the initiative and act before regulations are introduced. Joint efforts from brand managers and consumer welfare groups can provide the necessary education to help parents interpret nutrient information on FOP labels on food products targeted at children.

Work in the future could examine whether proximity of the verbal nutrient claim to the nutrient symbol on the FOP label has any impact on how the information is interpreted. A consideration of other food product types is another possibility, as is a broader range of healthiness options to ascertain if the effects of these FOP product labels have identifiable boundaries. This is prompted by the realization that the Coco Crispy unhealthy option in the present study might have been perceived as too unhealthy.

(A précis of the article “Front-of-package product labels: influences of varying nutritional food labels on parental decisions”. Supplied by Marketing Consultants for Emerald.)