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## How Do Front and Back Package Labels Influence Beliefs About Health Claims?

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**One dilemma with health claims is that too much information can confuse consumers and too little information can mislead them. A controlled study is used to examine the effectiveness of various front-sided health claims when used in combination with a full health claim on the back of a package. The results indicate that combining short health claims on the front of a package with full health claims on the back of the package leads consumers to more fully process and believe the claim. The basic finding that using two sides of a package (short claim on front; long on back) increases the believability of health claims is relevant for policymakers, consumers, and researchers.**

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During the FDA's consideration of a soy health claim in the late 1990s, an important issue was how this claim should be worded on packages. While some believed a longer, more complete health claim would be most accurate, others believed a shorter claim would be more easily processed and more persuasive. The concern over FDA claims being accurate but misunderstood is not without support. While the Nutrition Labeling and Education Act (NLEA) was intended to make food labels more useful and informative for consumers, consumers still do not always comprehend nutrition information (Szykman et al. 1997). Many are skeptical of health claims, and they believe such claims are incomplete, misleading, or trivial (Preston 2002; Silverglade 1991). The same is true with health warning labels, such as those on alcohol (Creyer, Kozup, and Burton 2002). Part of the problem may be the way in which such information is formatted (Burton and Andrews 1996; Ippolito and Mathios 1991). In some cases too much information overwhelms consumers, and in other cases too little information misleads them (Jacoby, Speller, and Kohn 1977).

Roe et al. (1999) found that consumers view front-label information as a summary of a product's benefits or hazards. Presumably, if consumers found interesting or important information incompletely described on the

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front of a product, they would be motivated to seek clarification on other parts of the package. Unfortunately, the Roe et al. study, like many others, examined only front label information. Yet people who are casually skimming a front label might take away only a top-line summary. The more difficult this front-label information is to quickly comprehend, the more likely it will be ignored or misinterpreted. Other consumers, such as those who are nutrition conscious, may be more likely to examine all sides of a package in detail (Bender and Derby 1992). Effective nutrition labels should take both these less involved and more involved shoppers into account (Moorman 1996). One way to address the different information needs of both groups would be to use converging information on both the front and back labels of a package.

One combination of information that might be appropriate for a wide range of consumers would involve back-panel information that provides complete nutritional details and front-panel information that provides a brief summary of these details. In such a case, a casual shopper could skim the front and have the basic notion of the claim, and a more involved shopper could find detailed information on the back of the package. We hypothesize that the presence of a short claim on the front label makes it easier to process attribute-specific product information. To the extent this information is unambiguous, it should improve the believability or persuasiveness of the health claims.

Since we know that health claims on the front panel of a package can influence purchase behavior, our research question then becomes *how much* front-panel information is needed to persuasively communicate the health benefits or the health hazards of a product. Following a review of how nutrition label information might be processed, a study is described which compares consumers who are exposed to a combination of labels with complete information on the back along with shorter summary labels on the front.

## BACKGROUND

While labeling can influence perceptions, preferences, pre-purchase expectations, and post-trial evaluations (Ford et al. 1996; Malhotra 1982), too much information can lead consumers to become confused and to make poorer decisions (Wilke 1974). Understanding the ideal amount of purchase-relevant information has been a major concern of both policy-makers and marketing researchers (Burton and Biswas 1993; Wilkie 1974). The value of label information, however, hinges on the availability,

complexity, and relevance of the information provided to consumers through packaging and advertising (Feick, Herrmann, and Warland 1986). If too much information is provided to consumers in a complicated format, they lose their ability to utilize it, and they make poorly informed decisions because of limited time and short-term memory capability (Singh and Cole 1993).

One way to sensitively measure how consumers react to a message—such as nutrition information on a package label—is to have them write down the relevant thoughts and feelings that came to mind as they viewed that message (Wansink, Ray, and Batra 1994). These thoughts can then be classified and analyzed to determine how the label is being processed and assimilated by consumers. One common method to classify thoughts is by whether they are attribute-specific or are instead more general and evaluative in nature (Sujan 1985). Attribute-specific thoughts (such as “soy helps reduce heart disease” or “this product has 10 grams of soy in it”) are thoughts that involve the restating or the processing of an attribute-related fact. General evaluative thoughts (such as “this looks good” or “I think I’d try it”) tend to not make explicit reference to attributes or to health consequences, but instead tend to be summative. It is generally accepted that consumers who generate a higher number of attribute-specific thoughts have been more involved with processing the message than those who instead generate general thoughts (Sujan 1985). When these attribute-specific thoughts are supportive of the claim (in contrast to counterarguing the claim), they can lead to greater levels of persuasion (Wansink 1994).

Excessive amounts of information may be simply ignored by consumers. If, however, consumers view front-panel information as a summary of the package (Levy, Fein, and Schucker 1996), the presence of simplified shorter claims on the front panel may lead to health claims being more easily processed and more persuasive. A consumer’s processing of such a claim should be reflected in the types of thoughts or cognitive responses he or she generates. That is, a person viewing a short health claim should generate a greater number of attribute-specific thoughts and fewer general evaluative thoughts when compared to a person who views no claim or who ignores an overly complex one.

H<sub>1</sub>: When combined with complete health claim information on a back panel of a product, a shorter front-panel health claim will lead consumers to generate a greater number of attribute-specific thoughts and fewer general evaluative thoughts than when in the presence of a longer front-panel health claim.

Understanding the types of thoughts consumers have when processing label information is important because these thoughts reflect one's processing of the information (Keller and Staelin 1987). Recall that a concern with long health claims is that people do not understand them, and a concern of short health claims is that people can be misled by them. Having a short claim on the front can give all consumers a general idea of the health claim, yet it still enables interested consumers the opportunity to evaluate the full claim information on back. Because having a longer health claim on the front is likely to be ignored by some individuals, it is less likely to be believed than a shorter claim. To the extent these claims are perceived as favorable, this increased level of attribute-specific processing is likely to make shorter claims more persuasive.

H<sub>2</sub>: When combined with back-panel health information, a short front-panel claim will be more persuasive than will a long claim or no claim.

The effectiveness of short front claims is believed to increase the processing (H<sub>1</sub>) and the believability of health claims (H<sub>2</sub>). The abbreviated claim may, however, lead one to less carefully scrutinize the more complete back panel, believing they already understand the claim (Lepkowska-White and Parsons 2001). This could lead to inaccurate understanding of the claims. The same mechanism that generates specific thoughts about a product may also lead one to infer traits or benefits that might seem reasonable, but be false. In addition to examining H<sub>1</sub> and H<sub>2</sub>, we will explore whether this same mechanism that makes short claims more believable may also lead to false inferences.

### Method

To determine how the length of front-panel information influences consumers, we compared three modified packages for vegetable (soy) protein patties. To make the task as realistic as possible, an existing product package was modified. The specific package was selected because it was representative of the category, yet unfamiliar to people in the study because it was from a different region of the country.

Respondents were a combination of 111 adults (63% female; average age of 38) and 118 undergraduate students (52% female; average age of 21) from a major university town. The adults were recruited through a mall intercept method and offered \$6.00 in cash for their participation. The stu-

## FIGURE

*Front and Back Panel Health Claims: Experimental Treatments*

Front Panel	No Claim	(blank)
	Short Claim	"Soy protein may help reduce the risk of heart disease. See back panel for nutrition information."
	Long Claim	"Soy protein, as part of a diet low in saturated fat and cholesterol, may help reduce the risk of heart disease. See back panel for nutrition information"
Back Panel	Complete Soy Health Claim (with a standard nutrition facts information panel)	"25 grams of soy protein a day, as a part of a diet low in saturated fat and cholesterol, may help reduce the risk of heart disease. A serving of Harvest Burger provides 16 grams of soy protein"

dents were part of a subject pool and were provided course credit in exchange for their participation. Because two groups of consumers were used to help generalize the findings (cf. Rotfeld 2003), no differences between the populations were expected. Consistent with the approved human subjects procedures, all consumers had given their consent to be involved in the study.

The study design was a 3x1 between-subject design where three different nutrition label conditions for the vegetable protein patties were used (see Figure). The front label of the product was altered by using a shorter soy health claim, a longer soy health claim, or no claim (control condition). A complete soy health claim along with the standard nutrition facts information was provided on the back panel in all three conditions.

At the beginning of the study, each respondent was told that there were some new concept products being developed and that we would like to know their impressions of them. To help minimize any unnatural demand effects as they examined the package, each respondent was shown two distracter products before being given one of the three label conditions of the target product. They were next given a questionnaire that asked them to write down the thoughts (cognitive responses) they had when examining the product. Analyzing the content of these written cognitive responses will enable us to examine the processing of this health claim information ( $H_1$ ).

Following this, each participant was asked about various health benefits of the product on 9-point Likert (1 = strongly disagree; 9 = strongly

agree) scales. Three target claims were used to test the impact of labeling on claim believability ( $H_2$ ). These involved the rating of three statements ("People would benefit from eating this product," "This product may reduce the risk of heart disease," and "This should be eaten with a low saturated fat diet"). In addition, one claim that science currently believes to be false ("This product can help counteract less healthy food") was included to explore whether the same process that makes claims more believable may also lead to inaccuracies.

Following the classification protocols outlined by Sujan (1985), the cognitive responses of all the respondents were then classified by two researchers who were blind to the conditions and to the purpose of the study. The responses were classified as being either general evaluative thoughts, attribute-specific thoughts, or other. They were also classified by their valance (positive or negative). The two coders agreed on 92% of the classifications, and their disagreements were resolved through discussion.

All data were analyzed in a design where three front label conditions (no claim, a short claim, and long claim) were crossed with one back label condition (complete soy health claim and nutrition facts panel). Chi-square analyses were performed for the cognitive responses, and one-way ANOVAs were performed for belief measures. Post hoc multiple comparisons, using Tukey's Honestly Significant Difference (Tukey's HSD), were conducted in order to make all of the pair-wise comparisons between groups and to set the experiment-wise error rate at the error rate for the collection for all pair-wise comparisons. Because the short claim and the long claim labels were predicted to have opposing influences on the way a label is processed, the relative impact of each will be conservatively tested relative to the no label control condition.

## RESULTS

As predicted, consumers who saw short claims on the front of a package generated a greater number of attribute-specific thoughts and fewer general evaluative thoughts about the product than those seeing a longer claim ( $H_1$ ). As is indicated in Table 1, consumers who saw short health claims generated significantly fewer general evaluative thoughts ( $F_{2,37} = 6.78; p < .01$ ) and more attribute-specific thoughts ( $F_{2,237} = 4.93; p < .01$ ) than those presented with long health claims. The use of general evaluative thoughts is typically associated with less involved and less effortful processing compared to the generation of attribute-specific thoughts. Indeed, the number of thoughts generated by the consumers in the long claim con-

TABLE 1  
*How Front-Sided Health Claims Impact One's Thoughts about a Product*

Average Number of Product-related Thoughts (Cognitive Responses)	Front Label Condition			F-Values	Tukey's HSD Multiple Comparison*		
	Control Group (n = 82)	Shorter Claim (n = 79)	Longer Claim (n = 78)		Control Group vs. Shorter Claim	Control Group vs. Longer Claim	Shorter Claim vs. Longer Claim
Total Number of Thoughts	1.3	1.4	1.4	0.573			
Number of General Thoughts	1.0	0.7	1.2	6.780**	*		**
Number of Attribute-Specific Thoughts	0.3	0.7	0.2	4.933**	*		**

Note. Numbers represent the average number of types of thoughts generated.  
 \*\* $p < .05$ . \* $p < .10$ .

dition was similar to those in the condition where no claim information was given. They generated a similar number of general evaluative thoughts (1.2 vs. 1.0) and of attribute specific thoughts (0.3 vs. 0.2).

Analyzing the number of and type of cognitive responses one generates when reading a package label helps us better assess whether consumers are making general evaluations or are making specific attribute-level observations. While all three front label conditions generated a similar number of thoughts (1.3 to 1.4), the nature of these thoughts significantly varied. In general, those seeing a shorter claim on a front label generated fewer general thoughts and more attribute-specific thoughts than those in either the longer claim condition or in the control group. This finding is consistent with our prediction ( $H_2$ ) that people who see shorter health claims will find them more persuasive than those who see longer claims or no health claims.

One consequence of (favorable) attribute-specific processing is that it leads to an increased level of believability and persuasiveness of the relevant claims. Consistent with  $H_2$ , this was what was found. The results in Table 2 indicate that a simplified, shorter health claim led consumers to believe that "People would benefit from eating the product" ( $F_{2,237} = 5.42$ ;  $p < .05$ ) than did those consumers who saw the long claim or who saw no claim (6.9 vs. 5.7 and 5.6 respectively). This same general pattern was

TABLE 2  
*The Impact of Front-Sided Health Claims on Product Evaluations*

Product Evaluative Judgment	Front Label Condition			<i>F</i> -values	Turkey's HSD Multiple Comparisons*		
	Control Group ( <i>n</i> = 82)	Shorter Claim ( <i>n</i> = 79)	Longer Claim ( <i>n</i> = 78)		Control Group vs. Shorter Claim	Control Group vs. Longer Claim	Shorter Claim vs. Longer Claim
People would benefit from eating this product	5.6	6.9	5.7	5.42	**		**
This product may reduce the risk of heart disease	5.5	6.8	5.9	4.61	**		**
This product can help counteract less healthy foods	4.9	5.6	5.4	3.89	*		**
This should be eaten with a low saturated fat diet	5.7	6.2	5.9	0.96	*		

Note. Product evaluative judgments were measured on a 9-point scale (1 = strongly disagree; 9 = strongly agree).

\*\* $p < .05$ . \* $p < .10$ .

found when asked whether they agreed with the statement "This product may reduce the risk of heart disease" ( $F_{2,237} = 4.61$ ;  $p < .05$ ). Interestingly, the consumers who were given the longer claim were no more likely to believe "People would benefit from eating the product" (5.7 vs. 5.6) or that it would "Reduce the risk of heart disease" (5.9 vs. 5.5) than those who saw no front label information.

In this context, it is also important to note the extent to which consumers misinterpret health claims and infer unmerited benefits to products. In some cases, products with health claims may mistakenly appear to have a "magic pill" quality (Wansink and Park 2002). That is, they can wrongly be believed to accomplish much more than they can. To examine this, respondents were asked whether they agreed with the statement "This product can help counteract less healthy foods." While incorrect, people in both the short claim and the long claim conditions tended to believe that the product would help counteract their eating of less healthy foods ( $F_{2,237} = 3.89$ ;  $p < .05$ ). The length of the health claim had no effect, however, on whether they believed that the product should be eaten in combination with a low saturated-fat diet.

Exit interviews helped support the process behind why we see that short health claims on a front panel—in combination with a complete claim on back—can influence a consumer's evaluation of a product. In these interviews, consumers noted that the shorter claim helped them better understand the product's health benefits without providing so much information that they lost interest. This proved to be important because many consumers did not spend much time reading the package, and the longer claims were often the items that they claimed to skim.

## DISCUSSION AND IMPLICATIONS

How do the different formats of health claims—including FDA claims—on the front side of a package influence the thoughts consumers generate and the believability of a health label? These results suggest that combining short health claims on the front of a package with full health claims on the back of the package leads consumers to more fully process and believe the claim. In doing so, these results support the proponents of shorter claims and labels.

The basic finding that using two sides of a package (short claim on front; long on back) increases the believability of health claims is relevant for policymakers, consumers, and researchers. Policymakers may find it interesting that shorter health claims on the front panel led to better believability of the product benefits than did the longer claims. Consider the case of the FDA claim about soy protein. While some lawmakers argued that a longer, more complete health claim would be most accurate, others argued that a shorter claim would be more effective. Although the longer, more complete health claim is currently in place, its effectiveness is reduced if consumers either ignore it or do not understand it. Because short health claims on the front label of a package appear to enhance the believability of claims, such claims may also influence purchase or consumption behavior.

Most labeling studies focus only on the claims placed on one side of a label (Byrd-bredbenner 1994). Using only one side of the label appears to handicap a product's ability to communicate its health benefits to both the less involved and the more involved shopper. While some consumers simply skim the label of a product, others who are more involved will read it more closely if they wish. Using both sides of a package provides access to two different audiences. The longer, more comprehensive back-side claims provide the details sought by more involved consumers. The shorter, more abbreviated front-side claims provide the ease of processing

sought by less involved consumers. While the abbreviated claim offers a persuasive short-cut for processing product information, we provide preliminary evidence that it may lead to inaccurate inferences.

In an effort to generalize this research, a reasonably wide cross-section of age, income, and education levels were included in the sample. While all consumers were from the same geographic area, there is no reason to believe that general processing tendencies would significantly vary across geographic regions (cf. Creyer, Kozup, and Burton 2002). It is likely, however, that these results would become more extreme (i.e., short claims would become even more effective) with less educated consumers. They might also vary depending on the level of current usage of the product. It is also likely these results would have been more extreme in an in-store situation. In such an actual shopping situation, time-pressured shoppers might be even more likely to skim the label. This would further necessitate the importance of having a shortened claim on the front of the package.

Perhaps the most promising area of future research in this area lies in examining the impact of short versus long claims across different types of products. Healthy foods (such as soy) can invoke strong likes or dislikes, yet it is not clear if the results we see here would also be found with more neutral (or less familiar) products. It is also important to extend this research to situations where there are increased risks associated with the use or misuse of a product. The same principles we used when examining health labels are also relevant when examining how warning labels of controlled substances such as alcohol or tobacco influence different types of consumers. For instance, preliminary evidence suggests shortened "alcohol is a drug" warnings were more effective than longer warnings for binge-drinkers, but were equally effective for non-binge drinkers (Creyer, Kozup, and Burton 2002).

The most critical need for an extension of this research is in the area of studies in this area of prescription drugs and over-the-counter medicines. While combining shorter and longer claims on packages should be most persuasive, the objective is to encourage compliance rather than simply providing processing convenience (Rotfeld 2002). This necessitates carefully understanding how consumers—many who are not feeling well and may be desperate for relief—will tend to process labels and make usage and consumption inferences that influence their behavior (e.g., if one pill is good, two will be better).

While this paper examines how front and back labels influence the persuasiveness of health claims, it is also important to investigate how such la-

bels influence one's *understanding* of health claims. Although a necessary condition for an accurate understanding of a health claim is that it must be processed, it also seems that the processing of a health claim can lead consumers to infer unmerited benefits to the product. At some point, it would be useful to determine whether inaccuracies are the result of a "halo effect" or are instead a result of more intentional inferences.

More information is not always better for all consumers. Nor is it best for all products. While having a full information claim on a package is a necessity, it may be more effective as a back-panel point-of-reference that is combined with an abbreviated claim on the front. If there are few disadvantages or dire consequences to a label being misinterpreted, the increased believability of using front-side and back-side labels might be well worth the price of minor misunderstandings. Consider FDA claims related to food nutrition. Any harm to health from excessive believability may not much matter. In contrast, for pharmaceutical products or over-the-counter medicines, the excessive believability of shorter labels may cause considerable harm.

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