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Abstract

This study with Australian consumers investigated how appealing different health claims combined with particular food carriers were to Australian consumers, and compared the results of a similar study with Dutch consumers. 149 shoppers considered up to 30 different food concepts, rating how 'attractive', 'believable', and 'new and different' they found each concept and their 'intention to try'. Each variable was significantly related to intention to try ($p < 0.001$) and together explained 56% of the intention score. Claims and carriers independently had a significant effect on ratings of attractiveness and intention to try but, unlike the Dutch study, the carrier was a more important predictor of intention to purchase than the claim. Implications for regulation of health claims for food are discussed.

Keywords

era2015, health claims, functional foods, consumers, food regulation

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Other Social and Behavioral Sciences | Public Health | Social and Behavioral Sciences

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Title: **Australian consumer attitudes to health claim - food product compatibility for functional foods**

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Contributions:

P Williams and L Ridges planned the study and prepared the manuscript. B Ripper and M Hung carried out the surveys and analysed results; M Batterham assisted with statistical analysis and manuscript revision.

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Abstract

This study with Australian consumers investigated how appealing different health claims combined with particular food carriers were to Australian consumers, and compared the results of a similar study with Dutch consumers. 149 shoppers considered up to 30 different food concepts, rating how 'attractive', 'believable', and 'new and different' they found each concept and their 'intention to try'. Each variable was significantly related to intention to try ($p < 0.001$) and together explained 56% of the intention score. Claims and carriers independently had a significant effect on ratings of attractiveness and intention to try but, unlike the Dutch study, the carrier was a more important predictor of intention to purchase than the claim. Implications for regulation of health claims for food are discussed.

Key words: health claims; functional foods; consumers; food regulation

Introduction

In Australia and New Zealand, regulations currently restrict the use of claims on food to nutrient content and health maintenance claims. Claims about the prevention or reduction of disease risk are currently prohibited (with one exception about folate) although this may soon change (Food Standards Australia New Zealand, 2007). Nonetheless, health claims are already present in the Australian food market on labels, in advertising and the internet (Williams *et al*, 2007).

The effect claims have on consumer perceptions has not been extensively studied (Williams, 2005). There have been surveys on consumer attitudes generally (Food Standards Australia New Zealand, 2003) and one experimental study comparing different formats of label claims (Singer *et al*, 2006), but there has been no research about the combinations of health claims and food carriers in Australia.

In 2002, van Kleef and others conducted a study with Dutch consumers examining the effect that a range of health claims and food carriers had on consumer perceptions and their intention to try a novel functional food (van Kleef *et al*, 2002; van Kleef *et al*, 2005). There are differences between countries in consumer attitudes to functional food propositions (Bech-Larsen & Grunert, 2003). This study was designed to test whether there were differences between Australian and Dutch consumers in the effect of health claims and food carriers on perceptions about foods with functional ingredients. It aimed to identify whether the food carrier or claim has more influence on perceptions and intention to try, and which types of foods and claims are seen as more appropriate for functional foods.

Methods

Participants

Participants were recruited from two shopping malls in an urban area south of Sydney, Australia. Shoppers were invited to participate at a stall in the mall and offered an incentive voucher for coffee and cake. Subjects were interviewed to collect demographic information and asked whether they considered the health aspects of food when shopping. Only volunteers who were above 18 years, were the primary household food purchaser and stated that health was an important consideration when shopping were included. The University of Wollongong Human Research Ethics Committee approved the study.

Study design

Ten health claims and food carriers (Table 1), based on those used in the previous Dutch study, were combined to create 100 health claim-carrier concepts. One sole change in this study was that the claim 'reduces the risk of dementia' was changed to 'reduces the risk of age-related deterioration of the eye', because this is a current Australian public health priority (Department of Health and Ageing, 2005).

Concepts were presented to participants as in the previous study (van Kleef et al., 2005), on a black and white A4 size card, with a claim statement and a picture of the food, but without identification of the putative active ingredient. Participants were given up to 3 bundles of 10 concepts on a predetermined pattern so that each concept was reviewed by at least 30 people. Participants rated how 'attractive', 'believable' and 'new and different' they found the concepts, using a 5-point scale with end-points labelled 'not at all' to 'very', and asked 'would you like to try this product?' to determine their intention to try, with a scale from 'absolutely not' to 'absolutely'.

Data analysis

Analysis of variance (ANOVA) was used to estimate the influence the claim and carrier independently, and the influence of the claim-carrier interaction on the four consumer measures - attractiveness, believability, uniqueness and intention to try (the dependent variables). Differences between the means for 'attractiveness' and 'intention to try' were

analysed using the Student-Newman-Keuls multiple range test. Regression analysis determined how the three variables 'attractive', 'believable', 'new and different' (and combination of those) contributed to intention to try. Analyses were conducted using the Statistical Package for Social Sciences (V10.0.5: SPSS Inc., Chicago, USA). Statistical differences were regarded as significant at $p < 0.05$.

Results

149 subjects participated: 41% male and 59% female; 37% aged 18-34y, 40% aged 35-54y, and 23% aged 55y or over; 78% were tertiary educated and 37% said they had to consider a person suffering from a specific disease when shopping. Diabetes, heart disease and cancer were the conditions most prevalent in these shoppers' households.

ANOVA indicated that both health claims and carriers independently had a significant effect ($p < 0.001$) on ratings of intention to try, credibility, uniqueness and attractiveness. The carrier was a more important factor than the claims themselves. For credibility, uniqueness, and intention to try, small but statistically significant two-way-interactions were found, indicating that certain combinations of health claims and carriers were evaluated differently from what would be expected from evaluations of the claim and carrier separately.

All 10 health claims independently had a positive influence on concept attractiveness, with scores >3.0 (Table 2). For intention to try, claims about serious diseases rated more highly than those promising psychological or appearance benefits. Results by carrier are presented in Table 3. Health claims on tea, yoghurt, soup and brown bread had the highest ratings on intention to try, significantly different to those for ice-cream, chewing gum, margarine and meat replacer.

Regression analysis (Table 4) showed that intention to try was driven independently by concept attractiveness, believability and uniqueness. Each factor alone was statistically significant, with attractiveness being the most influential factor on intention to purchase. Together these three variables accounted for 56% of the variation in intention to try.

Discussion

Limitations of the study

The subjects were not a random sample of consumers. They were more highly educated than average and expressed interest in the health properties of the foods they purchased. However such consumers are exactly those most likely to be interested in health claims for food when making purchase decisions (Nayga, 1996).

A second limitation relates to the study design. To control for several factors known to influence consumers' perceptions - format and design in terms of graphics, colour, size, and placement of the claim print (Stewart & Martin, 1994) - participants were shown only concept pictures rather than more realistic product packaging. This could affect product beliefs and purchase intention (Bone & France, 2001). Lastly, the active ingredients were not described, which may have reduced claim credibility.

The results confirm two of the major findings from the Dutch study (van Kleef et al., 2005). Willingness to try a functional food was driven mostly by the attractiveness of the claimed health benefit. Perceptions of the credibility and uniqueness of the claim also significantly enhanced purchase intent, but to a lesser extent (Table 4). Secondly, the lack of significant interaction between health claim and carrier for attractiveness indicates that consumers considered the claim and the carriers independently of each other.

This study demonstrated that food carriers are influential on consumer perceptions, independent of the health claim. This supports results from a European study which found a link between perceptions of the healthiness of a functional food and intention to try (Bech-Larsen & Grunert, 2003). That study noted perceptions of healthiness are often based on prior beliefs of the nutritional quality of the carrier, a finding also reported with American consumers (Levy *et al*, 1997). Canadians have also expressed a preference for health claims to be carried on commonly perceived healthier foods, such as bread and yoghurt (National Institute of Nutrition, 2000).

As in the Dutch study, claims about serious diseases were rated more attractive, and increased likely intention to try more than claims for psychological or appearance benefits. This is consistent with the health framing literature (Levin *et al*, 1998) and results from other studies (Food Standards Agency, 2002).

Attractiveness, credibility and uniqueness of the food concept accounted for only 56% of the likely intention to try. Another Australian study, on intention to use omega-3 enriched foods, also reported attitude to the food and claim accounted for 56% of intention to try (Patch *et al*, 2005). This implies almost half of the intention to try is related to other factors. It is known that gender, dietary pattern and age (Saher *et al*, 2004), nutrition knowledge (Bogue *et al*, 2005), taste preferences (Verbeke, 2006), advertising effects (Byrd-Bredbenner & Grasso, 2001), and education level (Fullmer *et al*, 1991) all influence decisions to use functional foods.

Differences between Australian and Dutch consumers

In both countries, ratings of attractiveness and intention to try were higher for foods perceived to be healthier (Sijtesma *et al*, 2004): tea, yoghurt and brown bread ranked as the top three in Australia, while ice-cream, chewing gum and chocolate were ranked lower. In general, the Australians gave higher absolute ratings of intention to try for all carriers; Dutch consumers rated only one food greater than 3.2, compared to five of the ten foods by the Australians. Another difference was that the health claim was a much less important factor for the Australians than the carrier when rating intention to try (the F value of health claims and carriers for Australians were 7.2 and 14.0 respectively, compared to 26.5 and 6.1 with Dutch consumers).

Both the Dutch and Australians rated yoghurt and brown bread among the top three foods for attractiveness and intention to try, and meat replacer and chewing gum as the lowest two, but margarine was perceived differently. It was ranked 2nd out of 10 foods in the Netherlands, versus 8th in Australia. This may relate to the longer history of health claims on such foods in Europe (Wolfs *et al*, 2006) compared to Australia, where there is significant scepticism about claims on high fat foods (Chan *et al*, 2005). The fact that tea was rated the most attractive

food carrier by Australian consumers may be influenced by the widespread presence of health claims on teas in the Australian market (Williams *et al*, 2006).

Conclusions

These results are consistent with other research suggesting that consumers expect health claims to be on healthier foods and that claims about prevention of serious diseases are more appealing than those about appearance or psychological benefits. These findings support regulatory options that establish nutritional eligibility requirements for foods which carry health claims and also point to the need for particular care in approval of claims for serious diseases. There were some noticeable differences in the reactions of Australian and Dutch consumers, particularly in views about which foods were appropriate to carry health claims. This suggests that regulators need to conduct consumer research with their local populations to inform policy decisions.

Table 1. Selected health claims and carriers.

Health Claims	Carriers
1. Protects against damage to skin from UV irradiation	A. Brown Bread
2. Gives extra energy	B. Bar of Chocolate
3. Helps maintain healthy cholesterol levels	C. Chewing Gum
4. Helps keep a youthful appearance	D. Margarine
5. Strengthens the natural defence of the body against frequently occurring diseases (like a cold)	E. Meat replacer
6. Reduces the risk of certain types of cancer	F. Pills
7. Reduces the risk of osteoporosis	G. Ice-cream
8. Reduces the risk of heart disease	H. Soup
9. Reduces stress	I. Tea
10. Reduces the risk of age-related deterioration of the eye	J. Yoghurt

Table 2. Subject ratings of attractiveness and intention to try for each health claim

Health claims	Attractiveness Mean (SD)	Intention to try Mean (SD)
Reduces the risk of certain types of cancer	3.88 ^d (1.25)	3.45 ^b (1.37)
Reduces the risk of heart disease	3.76 ^{cd} (1.28)	3.43 ^b (1.30)
Helps maintain healthy cholesterol levels	3.72 ^{cd} (1.30)	3.48 ^b (1.33)
Strengthens the natural defence of the body against frequently occurring diseases (like a cold)	3.68 ^{cd} (1.31)	3.42 ^b (1.35)
Reduces stress	3.60 ^c (1.37)	3.27 ^b (1.47)
Reduces the risk of osteoporosis	3.60 ^c (1.31)	3.28 ^b (1.36)
Reduces the risk of age-related deterioration of the eye	3.55 ^{bc} (1.34)	3.20 ^{ab} (1.42)
Gives extra energy	3.35 ^{ab} (1.33)	3.20 ^{ab} (1.33)
Protects against damage to skin from UV irradiation	3.33 ^{ab} (1.45)	2.97 ^a (1.49)
Helps keep a youthful appearance	3.29 ^a (1.48)	2.97 ^a (1.53)

a,b,c,d Mean values sharing the same letter within a column are not significantly different ($p = 0.05$).

Table 3. Subject ratings of attractiveness and intention to try for each carrier

Carriers	Attractiveness Mean (SD)	Intention to try Mean (SD)
Tea	3.99 ^a (1.17)	3.63 ^a (1.28)
Yoghurt	3.95 ^a (1.14)	3.63 ^a (1.31)
Soup	3.79 ^{a,b} (1.23)	3.43 ^{a,b} (1.34)
Brown Bread	3.58 ^{b,c} (1.27)	3.44 ^{a,b} (1.29)
Ice-cream	3.57 ^{b,c} (1.42)	3.11 ^{c,d} (1.49)
Bar of Chocolate	3.54 ^c (1.39)	3.28 ^{b,c} (1.42)
Pills	3.49 ^c (1.37)	3.16 ^{c,d} (1.39)
Margarine	3.48 ^c (1.34)	3.16 ^{c,d} (1.40)
Chewing gum	3.20 ^d (1.51)	2.89 ^d (1.49)
Meat replacer	3.17 ^d (1.43)	2.93 ^d (1.44)

a,b,c,d Mean values sharing the same letter within a column are not significantly different ($p = 0.05$).

Table 4. Results of regression analysis for intention to try contributed by the variables: 'attractive', 'believable', 'new and different' and the combination of all three variables.

	Attractive	Believable	New and different	Combination of all variables
β	0.61	0.23	0.059	0.56
P	<0.001	<0.001	<0.001	<0.001

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