The Effects of Front-of-Pack Nutrition Information and Product Claims on Consumers' Product Evaluations and Choice Behaviour

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Abstract

Enabling consumers to recognise foods' nutritional profiles is important because energy overconsumption is a significant contributing factor to a worldwide obesity epidemic. Parents especially need to be able to recognise which foods are healthy options for their children to eat regularly, and which are not, as childhood weight and dietary habits instilled while young have long-term implications for adult health. Policy makers are reluctant to regulate marketing of high fat, sugar and salt foods, but collectively the global food industry has implemented a suite of educational and informational interventions intended to help consumers control their weight. Foremost among these is the introduction of new front-of-pack nutrition labels and support for product claims that link nutrients to health-related outcomes.

The objective of this research was to determine whether detailed numeric or simple graphic front-of-pack nutrition labels influence how parents evaluate and choose between products, and could therefore contribute to public health objectives. Additionally, nutrition label performance in the context of product claims was also assessed.

There were two theoretical bases for this research; the first was the Elaboration Likelihood Model (ELM) of persuasion, which offers a general explanation of consumers' attitudinal reactions to new information. It states that motivation to engage with and ability to understand information determines how people process messages. The research also incorporated behaviour modification perspective, which stresses the role of external forces in shaping behaviour.

Reflecting these two theoretical perspectives, the research used both cognitive and behavioural experimental methodologies. One formative study, two attitudinal experiments and one choice experiment investigated whether:

- new nutrition label formats enhance consumers' ability to distinguish between foods with differing nutritional values; and
- different nutrition labels formats moderate the influence of varying levels of product claims on consumers' attitudes and choices.

The formative research revealed that parents often struggle to balance a raft of goals when grocery shopping. While they may hold good nutrition as an important consideration, practical issues such as time pressure, price, convenience and preferences are more salient concerns that militate against using nutrition information.

The two cognitive studies found that parents' attitudes towards children's breakfast cereals with varying nutritional profiles were unaffected by predominantly numeric labelling formats; this result was observed in two experiments, confirming the hypothesis that numeric information is not incorporated in product evaluations. Conversely, a graphical "Traffic Light" label did affect parents' attitudes towards the two breakfast cereals; attitudes towards a less healthy option were significantly lower. The research also confirmed that the current nutrition information panel does not affect consumers' product choices, but adding nutrition information to the pack fronts did change choice behaviour. Both front-of-pack labels affected parents' choices, but the Traffic Light label had a greater impact. That is, parents were less likely to choose a less healthy cereal when presented with a Traffic Light label.

The addition of nutrition-content and health claims did not affect parents' attitudes, but these pieces of information were used when choosing between competing options. In particular, claims had significant choice utility when only numeric nutrition information was available. However, parents were less likely to be swayed by product claims on a less healthy cereal when the Traffic Light label was presented.

In summary, this research suggests that nutrition labels that display information graphically help consumers evaluate energy-dense products more accurately. Given the aim of nutrition labelling is to help consumers make healthier food choices, simple, graphical formats seem more likely to achieve this objective than highly detailed, numeric formats.

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Many other people provided valuable feedback and suggestions at various stages of my PhD journey. Professor Debra Scammon provided helpful comments on my proposal. Assistant Professor Derek Rucker generously shared his expertise on the Elaboration Likelihood Model while I designed questionnaire used in Studies Two and Three. I would also like to acknowledge the feedback received from reviewers at ANZMAC Doctoral Colloquia: Associate Professor Gillian Sullivan-Mort and Associate Professor Chris Dubelar in 2006, and Professor Peter Danaher, Professor Phil Harris, and Dr Ernest de Run in 2007.

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the survey website used in the final two studies and helping me to master all the helpful features built into Microsoft Word!

The first study was approved by the Massey University Human Ethics Committee Southern B, Application 06/47. The subsequent quantitative research phases were evaluated by peer review and judged to be low risk, and were recorded on the Low Risk Database of the Massey University Human Ethics Committee in 2008.

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List of Abbreviations

Where relevant, the country is stated in brackets if not included in the title.

ABS	Australian Bureau of Statistics
AFGC	Australian Food and Grocery Council
AICR	American Institute for Cancer Research
AIHW	Australian Institute of Health and Welfare
ANA	Agencies for Nutrition Action (New Zealand)
ANZA	Association of New Zealand Advertisers
ANZFA	Australia New Zealand Food Authority (superseded by FSANZ)
BMI	Body Mass Index
BMP	Behaviour Modification Perspective
BNF	British Nutrition Foundation
CDC	Centers for Disease Control (United States)
CSPI	Center for Science in the Public Interest (United States)
DH	Department of Health (England)
DHA	Department of Health and Aging (Australia)
DRV	Daily Reference Value
ELM	Elaboration Likelihood Model of persuasion
FAO	Food and Agriculture Organization of the United Nations
FCQ	Food Choice Questionnaire
FIA	Food Industry Accord (New Zealand)
FIG	Food Industry Group (New Zealand)
FOE	Fight the Obesity Epidemic (New Zealand)
FOP	Front-of-pack (referring to placement of information)
FSA	Food Standards Agency (United Kingdom)
FSANZ	Food Standards Australia New Zealand
GAO	Government Accountability Office (United States)
GDA	Guideline Daily Amount
HEHA	Healthy Eating Healthy Action (New Zealand Government Policy)
HFSS	High fat, sugar and sodium (salt) foods
HRM	Hierarchical Multiple Regression
HSC	Health Select Committee

HSM	Heuristic-Systematic Model
IFIC	International Food Information Council Foundation (United States)
IOM	Institute of Medicine (United States)
kJ	Kilojoule (1 Calorie equals 4.18 kJ)
MAO	Motivation, Ability and Opportunity
MLR	Multinomial Logit Regression
MTL	Multiple Traffic Light label
MOH	Ministry of Health (New Zealand)
NCD	Non-Communicable Disease
NFP	Nutrition Facts Panel (United States NLEA mandated format)
NHF	National Heart Foundation (New Zealand)
NIP	Nutrition Information Panel (current Australian and New Zealand label format mandated by the Food Code)
NLEA	Nutrition Labeling and Education Act 1990 (United States)
ns	Not (statistically) significant
NZFGC	New Zealand Food and Grocery Council
NZNF	New Zealand Nutrition Foundation
NZTBC	New Zealand Television Broadcasters' Council
OAC	Obesity Action Coalition (New Zealand)
OECD	Organisation for Economic Co-operation and Development
PDI	Percent Daily Intake; equivalent to PDV
PDV	Percent Daily Value; equivalent to PDI
PHA	Public Health Association (New Zealand)
RAC	Responsible Advertising and Children (global industry alliance)
RDA	Recommended Daily Allowance
RDI	Recommended Dietary Intake / Reference Daily Intake
RANZ	Restaurant Association of New Zealand
SES	Socio-Economic Status
SPARC	Sport and Recreation Council (New Zealand)
SPDCM	Stated Preference Discrete Choice Modelling
TLL	Traffic Light Label
USDA	United States Department of Agriculture
USDHHS	United States Department of Health and Human Services
WCRF	World Cancer Research Fund
WHO	World Health Organization

List of Publications

Journal Articles

Maubach, N.B, & Hoek, J.A. (2010). A qualitative study of New Zealand parents' views on front-of-pack nutrition labels. *Nutrition & Dietetics, 67*, 90-96.

Maubach, N. B., Hoek, J. A., & McCreanor, T. N. (2009). An exploration of parents' food purchasing behaviours. *Appetite, 53*(3), 297-302.

Conference Papers

Maubach, N. B., Hoek, J. A., Gendall, P. J., & Healey, B. J. (2009, 30 November-2 December). Motivation, ability and the influence of nutrition information formats. Paper presented at the *Australian and New Zealand Marketing Academy Conference*, Melbourne, Australia.
Received: Best Paper Award in the Consumer Behaviour track

Maubach, N.B., Hoek, J.A., Gendall, P.J., & Hedderley, D. (2009, 28-30 May). The effect of front-of-package nutrition information and product claims on consumers' attitudinal evaluations and choice behaviour. Paper presented at the *Marketing and Public Policy Conference*, Washington DC, USA.
Received: Best Student Paper Award
Received: Brenda M. Derby Memorial Prize

Maubach, N. B., & Hoek, J. A. (2008, 1-3 December). Alternative nutrition information disclosure formats: Using the elaboration likelihood model to investigate consumers' attitudinal responses. Paper presented at the *Australian and New Zealand Marketing Academy Conference*, Sydney, Australia.

Maubach, N. B., & Hoek, J. A. (2008, 15-16 July). The effect of alternative nutrition information formats on consumers' evaluations of a children's breakfast cereal. Paper presented at the *International Nonprofit and Social Marketing Conference*, Wollongong, Australia.
Received: Best Student Paper Award

Maubach, N. B., Hoek, J. A., & McCreanor, T. N. (2007, 3-5 December). Parents' views of nutrition information labels: An exploratory study. Paper presented at the *Australian and New Zealand Marketing Academy Conference*, Dunedin, New Zealand.