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The impact of front-of-pack marketing attributes versus nutrition and health information on parents' food choices

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ABSTRACT

Front-of-pack attributes have the potential to affect parents' food choices on behalf of their children and form one avenue through which strategies to address the obesogenic environment can be developed. Previous work has focused on the isolated effects of nutrition and health information (e.g. labeling systems, health claims), and how parents trade off this information against co-occurring marketing features (e.g. product imagery, cartoons) is unclear. A Discrete Choice Experiment was utilized to understand how front-of-pack nutrition, health and marketing attributes, as well as pricing, influenced parents' choices of cereal for their child. Packages varied with respect to the two elements of the Australian Health Star Rating system (stars and nutrient facts panel), along with written claims, product visuals, additional visuals, and price. A total of 520 parents (53% male) with a child aged between five and eleven years were recruited via an online panel company and completed the survey. Product visuals, followed by star ratings, were found to be the most significant attributes in driving choice, while written claims and other visuals were the least significant. Use of the Health Star Rating (HSR) system and other features were related to the child's fussiness level and parents' concerns about their child's weight with parents of fussy children, in particular, being less influenced by the HSR star information and price. The findings suggest that front-of-pack health labeling systems can affect choice when parents trade this information off against marketing attributes, yet some marketing attributes can be more influential, and not all parents utilize this information in the same way.

1. Introduction

The eating behaviors, dietary intakes and weight status of children in many developed countries are far from optimal. In the United States, 17% of children aged six to eleven years are obese and over one third are overweight or obese (Ogden, Carroll, Kit, & Flegal, 2014), whilst in the UK, 30% of five to ten year olds are overweight or obese (Health and Social Care Information Centre, 2015). In Australia, the setting for the present study, 23% of children aged four to 18 years are overweight or obese (Hardy et al., 2017). In addition, a national survey found that 98% of Australian children aged five to 14 years did not eat the recommended daily serves of fruit and vegetables (Australian Institute of Health and Welfare, 2016), whilst other research discovered two thirds of children exceed recommended sugar intakes, and four fifths exceed recommended saturated fat intakes (CSIRO, 2008). This presents a significant public health challenge as many aspects of eating behaviors, as well as weight status, are formed in childhood and are subsequently difficult to change (Savage, Fisher, & Birch, 2007; Scaglioni, Salvioni, & Galimberti, 2008; Wheaton, Millar, Allender, & Nichols, 2015). This puts individuals at greater risk for developing non-communicable diseases such as diabetes, cardiovascular disease and some forms of cancer in later life (Ebbeling, Pawlak, & Ludwig, 2002), which are presently the biggest causes of disease and disability in many developed countries including Australia (Australian Institute of Health and Welfare, 2016).

The development of poor eating behaviors in childhood is a complex problem that is the result of the interacting effects of multiple personal and societal factors, however the role of parents

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is well established (e.g., Birch & Davison, 2001; Golan & Crow, 2004; Lindsay, Sussner, Kim, & Gortmaker, 2006; Savage et al., 2007). Parents shape children's food environments, thus affecting not only the foods that are available for consumption, but also the development of eating behaviors, attitudes towards eating and food preferences (Benton, 2004; Birch & Davison, 2001; Johnson, 2016; Peters, Sinn, Campell & Lynch, 2012; Shloim, Edelson, Martin, & Hetherington, 2015; Steinsbekk, Belsky, & Wichstrøm, 2016; Syrad, Johnson, Wardle, & Llewellyn, 2016).

Although parents are generally motivated to feed their children well, they often struggle to do so (Alderson & Ogden, 1999; Maubach, Hoek, & McCreanor, 2009; Russell, Worsley, & Campbell, 2015). The reasons for this are multifaceted, but contributions are made by: 1) individual-level parent factors, such as lower education, ethnicity, socio-economic position, gender and eating pathology (Lloyd, Lubans, Plotnikoff, Collins, & Morgan, 2014; McPhie, Skouteris, Daniels, & Jansen, 2014; Shloim et al., 2015); 2) individual-level child factors, such as pestering (Pettigrew, Jongenelis, Chapman, & Miller, 2015), temperament (Bergmeier, Skouteris, Horwood, Hooley, & Richardson, 2014), and food fussiness (Dovey, Staples, Gibson, & Halford, 2008); and 3) societal factors, such as the availability of healthy and unhealthy foods (Swinburn et al., 2011), and the effects of marketing and advertising (Hastings, McDermott, Angus, Stead, & Thomson, 2006; Mehta et al., 2012; Roberto, Baik, Harris, & Brownell, 2010).

Marketing and advertising is particularly influential on both parents' and children's selection and consumption of non-core foods (Cairns, Angus, Hastings, & Caraher, 2013; Vilaro, Barnett, Watson, Merten, & Mathews, 2017). Although television advertising is still the predominant medium for promoting foods to children (Hastings et al., 2006; Kelly, Smith, King, Flood, & Bauman, 2007; Kelly et al., 2015; Roberts, Pettigrew, Chapman, Quester, & Miller, 2014), food packaging is also significant as it affects consumers, both parents and children, at the point of purchase (Hawkes, 2010; Young, 2004). Subsequently, Front of Pack (FoP) features have the potential to affect a large proportion of consumers' food choices and, therefore, health at the population level.

Many FoP attributes, such as imagery (e.g., of the product ingredients or sports people), colors, typography and unregulated written claims (e.g., taste claims), form important parts of a product's marketing and communications with consumers about its healthiness, tastiness or suitability for children (Dixon et al., 2014; Mehta et al., 2012). In fact, with few exceptions (e.g., nutrient facts panel, health claims or ingredient list, which are at least partly regulated by governments) marketers control the majority of information contained on food packages. As such, marketers use multiple techniques to influence both parents and children (Elliott, 2008; Mehta et al., 2012), such as bright colors, childish script and cartoon characters, with a particular emphasis on making a visual impact for products oriented towards children (Young, 2004).

The wide range of marketing, nutrition and ingredient information on food packages can make it confusing for consumers to make informed decisions. Packages may contain marketing images signaling health (e.g. athletes, fruits), but may also report nutrient profiles inconsistent with a healthy diet (e.g. high levels of sugar or sodium) on their nutrition information panels (Elliott, 2012). Furthermore, some FoP features (e.g. use of claims) are used extensively, regardless of the product's actual nutrient profile, highlighting that similar techniques are used to promote both healthy and unhealthy products (Elliott, 2008; Mehta et al., 2012). In fact, some unhealthy children's products are more likely to contain marketing images and text implying health than healthier products (Elliott, 2008), thus making it difficult for consumers to make accurate assessments of a product's healthfulness (Abrams, Evans, & Duff, 2015; Elliott, 2008; Mehta et al., 2012).

In an effort to help consumers make more informed decisions about the health content of packaged foods, many governments have introduced summary FoP nutrition labels to supplement more detailed nutrition information panels and ingredient information contained on sides or backs of packs. Systems range from those that are simple (e.g., ticks; stars) to those that are more complex (e.g., Guideline Daily Amount scores). Feunekes, Gortemaker, Willems, Lion, & van den Kommer's (2008) study of European consumers comparing several of these systems, found that all are effective in helping consumers make healthier choices, with little differences in perceived friendliness across systems. The authors did, however, find consumers made faster decisions with simpler FoP formats, thereby suggesting their suitability to be effective in shopping environments requiring quick decision-making. Various elements of the health ratings system can receive differing levels of attention. In studying cereal choices by Dutch and Turkish university students, van Herpen and van Trijp (2011) found that traffic light labels and logos receive greater attention and guide healthier choices relative to nutrition tables.

In Australia, the Government introduced the Health Star Rating (HSR) system in 2014, and several companies have adopted this voluntary system (see, www.healthstarrating.gov.au). This system combines both evaluative (i.e. numerical information on key nutrients) and reductive (i.e. a summary assessment of the food's health value) elements (Hamlin, McNeill, & Moore, 2015) in the form of a visual star rating (from ½ to five stars) and summary nutrient facts panel. This panel information contains the amount of four 'risk' nutrients (energy, sugar, saturated fat and sodium) and one positive nutrient (e.g., dietary fiber or protein per 100 g) (Department of Health, 2015). A recent study of Australian consumers found the HSR labeling to be most preferred over two other FoP labeling systems (Daily Intake Guide; Multiple Traffic Lights) largely because of its simplicity and ease of use (Pettigrew et al., 2017). However, whether parents actually rely more on the HSR system than on other FoP elements is unclear.

Although research effort has been directed at understanding how parents use and respond to nutrition and health information on food packages (Harris, Thompson, Schwartz, & Brownell, 2011; Watson et al., 2014; van Herpen & van Trijp, 2011), little is known about how this information affects parents' decisions when considered relative to other marketing FoP features. This is important given that developing an understanding of and strategies for addressing the effects of the obesogenic environment on parents and children (Swinburn, Egger, & Raza, 1999), and specifically the purchase and consumption of packaged foods as part of this is needed. To effectively promote healthier packaged foods to parents and their children it is necessary to understand not only how parents use FoP nutrition information like the HSR system, but also how these systems affect parents when taken in the context of other, possibly conflicting, FoP marketing attributes.

In understanding how parents use FoP attributes it is likely that not all parents will be affected in the same way. This is partly because parental feeding practices and decisions are affected by the characteristics of their child and their beliefs about them (Jansen et al., 2014). Children's food fussiness or pickiness is one characteristic that has wide ranging effects on parent-child feeding interactions (Cardona Cano et al., 2015; Dovey et al., 2008). Food fussiness is characterized by an unwillingness to eat both familiar and unfamiliar foods, and, therefore, a poorer dietary intake (Carruth, Ziegler, Gordon, & Barr, 2004; Dovey et al., 2008; Taylor, Wernimont, Northstone, & Emmett, 2015; Wardle, Guthrie, Sanderson, & Rapoport, 2001). Parents of fussy children have higher motivations to select foods that their child is already familiar with and likes, and, therefore, can be less focused on health or nutrition (Perry et al., 2015; Russell & Worsley, 2013) and so offer