Food marketing with movie character toys: Effects on young children's preferences for unhealthy and healthier fast food meals

Helen Dixon*, Philippa Niven, Maree Scully, Melanie Wakefield
Centre for Behavioural Research in Cancer, Cancer Council Victoria, 615 St Kilda Road, Melbourne, VIC 3004, Australia

Abstract
This study aimed to test whether movie tie-in premiums (MTIPs) accompanying unhealthy and healthier fast food meals influenced children's meal preferences and their perceptions of these meals. Nine hundred and four Grade 1 and 2 students (aged 5–9 years) from Melbourne, Australia participated in a between-subjects online experiment comprising the following conditions: (A) unhealthy and healthier meals with no MTIP (control); (B) unhealthy and healthier meals with MTIP (current situation in Australia); (C) unhealthy meals with MTIP and healthier meals without MTIP; (D) unhealthy meals without MTIP and healthier meals with MTIP. The latter condition tested a potential regulatory model restricting premiums to healthier meals. Participants were shown a trailer for a current children's movie followed by an advertisement for an associated McDonald's Happy Meal® (conditions B–D) or an advertisement for a children's leisure activity (condition A). They were then shown four McDonald's Happy Meal® options on screen and asked to select their preferred meal before completing detailed meal ratings. Overall, children showed a preference for unhealthy meals over healthier ones. Children were significantly more likely to select a healthier meal over an unhealthy meal when only the healthier meals were accompanied by a MTIP (condition D) compared to the other three conditions. When healthier meals were accompanied by a MTIP, children reported the meal looked better, would taste better, they would be more likely to ask their parents for this meal, and they would feel happier if their parents bought them this meal, compared to when the healthier meal was not accompanied by a MTIP. Results suggest that modifying the food marketing environment to restrict MTIPs to healthier meals should encourage healthier fast food meal choices by children.

1. Introduction

To advance global obesity prevention efforts, policy-relevant research concerning the impacts of prominent, universal food marketing strategies is needed. Commercial marketing of energy-dense, nutrient-poor foods and beverages (collectively called 'unhealthy food') has been identified as contributing to population levels of overweight and obesity and poor diet worldwide (World Health Organization, 2010). Systematic reviews have found that food promotions have a direct effect on children's nutrition knowledge, preferences, purchase behaviour, consumption patterns and diet-related health (Cairns, Angus, Hastings, & Caraher, 2013; World Health Organization, 2010). Research examining effects of specific types of food marketing on children helps identify promotions that are problematic for public health and those with potential utility in promoting healthy eating. The present experimental study explored children's reactions to one pervasive form of child-targeted food marketing - movie tie-in premiums (MTIPs). In addition to exploring how MTIPs influenced children's responses to unhealthy foods, this study also assessed the potential of MTIPs to promote healthier foods to children.

* Corresponding author. Centre for Behavioural Research in Cancer, Cancer Council Victoria, 615 St Kilda Road, Melbourne, Victoria 3004, Australia.
E-mail address: Helen.Dixon@cancervic.org.au (H. Dixon).
expenditures (Powell, Harris, & Fox, 2013).

Movie tie-in premiums (MTIPs) are a particular type of premium offer frequently used by major fast food restaurant chains and distributors of top box office films to co-promote their products to children. They involve offering meal plus free toy deals where the toys are lead characters from new release children’s films. Typically, marketing campaigns for MTIPs involve paid television advertising coinciding with the launch of the target movie in various markets throughout the world. Often the television ads for MTIPs feature actual movie footage or customised animation and special effects combining imagery of branded food products with film content. The MTIP is also promoted through in-store merchandising such as window posters, drive-through displays and movie-themed food packaging. For example, during McDonald’s exclusive global alliance with Disney between 1997 and 2006, McDonald’s Happy Meals® featured toys promoting movies such as A Bug’s Life and Toy Story (Vignali, 2001). More recently, McDonald’s entered into movie tie-in deals with other major production companies including Twentieth Century Fox (e.g. Night at the Museum and Ice Age sequels) and DreamWorks (e.g. Shrek 3) (Christian & Gereffi, 2010; MediaPost, 2009). Such high-profile MTIPs have vast audience reach, raising awareness of new release movies and fast food brands alike.

Theory and prior research offer insights into why MTIPs are well-positioned to influence children. Inclusion of a free giveaway (toy) with a meal may serve as a form of positive reinforcement. Behaviour (e.g. buying a meal) is more likely to be repeated if it is positively reinforced or rewarded (e.g. accompanied by a free toy). A toy premium paired with food may also facilitate an associative learning experience for children which may sway food preference (McAlister & Cornwall, 2012). As the toys used in MTIPs are licensed characters from current, high profile children’s movies, this may give them additional market leverage. Familiar media character branding appears to have a particularly powerful influence on children’s food preferences, choices and intake, especially for unhealthy foods (Kraak & Story, 2015b). As occurs with sports sponsorship (Gwinner, Larson, & Swanson, 2009), pairing fast foods with popular movie characters that children already have a relationship with might encourage ‘image transfer’ whereby positive perceptions of favoured characters are transferred to the associated brand, providing children who are favourably disposed to certain movie characters reason to purchase the associated product.

The manner in which marketing for MTIPs is executed is also likely to engage children. Just as animation is frequently used to appeal to children in food advertising (Cairns et al., 2013; Page & Brewster, 2007), the movies and associated television advertising for MTIPs typically employ animation. Animation effectively engages younger children as its perceptual salience helps to overcome the cognitive processing difficulties of younger children (Neelley & Schumann, 2004). MTIPs typically market a collectable set of character toys relating to the associated movie. Acquiring the complete set therefore requires repeat purchases (Page & Brewster, 2007), and the advertisements often explicitly encourage this (Pettigrew & Roberts, 2008). Experimental research has revealed the majority of preschool-aged children have the requisite skills for collecting a set, and the desire to collect can be very strong (McAlister, Cornwall, & Cornain, 2011). Thus, MTIPs are well positioned to be a highly persuasive form of food marketing with children.

Ethical concerns have been raised about using premiums and licensed characters to market unhealthy foods to children, based on the nature of the promotional strategies employed and children’s vulnerability to being misled by advertising. Advertising for food-related MTIPs tends to employ multiple elements to engage children. These elements, which are used in child-targeted food advertising generally, include cross-selling, collectables, and editorial elements to attract and maintain children’s attention and engage them emotionally (e.g. action, rapid pacing, rapid cuts, animation, story-telling, loud music, and suggesting product consumption is associated with fun, happiness or mood improvement) (Page & Brewster, 2007). Advertising that incorporates characters from movies and television shows is also likely to blur children’s capacity to distinguish between entertainment and advertising (Page & Brewster, 2007). Children’s immature cognitive abilities coupled with the affect-based nature of contemporary advertising mean they are not always aware of the persuasive intent of advertising, and they are especially susceptible to its influence (Rozendaal, Lapierre, van Reijmersdal, & Buijzen, 2011).

Given these ethical concerns, public health and child advocates have argued for stricter regulations surrounding the use of licensed characters and premiums to market foods to children. Internationally, self-regulatory guidelines regarding the use of premiums have been implemented with many major global food and beverage companies pledging adherence to such standards (Yale Rudd Center for Food Policy and Obesity, 2014). However, studies suggest many food advertisements continue to focus on premiums (Jenkin et al., 2014) and industry self-regulation has been unsuccessful in de-emphasising toy premiums and tie-ins in child-targeted fast food advertisements (Bernhardt, Wilking, Gilbert-Diamond, Emond, & Sargent, 2015). A number of jurisdictions have introduced mandatory regulations that prohibit the use of promotional techniques such as licensed characters or toy premiums to market unhealthy foods to children (World Cancer Research Fund International, 2016). For example, in San Francisco in 2011, a city-wide ordinance was passed preventing free toy giveaways or other incentives with children’s meals sold at restaurants unless nutritional criteria were met. Rather than changing menus to meet ordinance criteria, some restaurants responded by selling toys separately from children’s meals. One restaurant chain changed to having healthier beverages and side-dishes with meals (Otten et al., 2014). To help refine public policy in this area, there is a need for research examining the impact of such policies on actual advertising content and in-store promotions, as well as on children’s food preferences.

Previous research exploring associations between food-related premiums and children’s food choices suggest these promotions have an impact, but point to the need for further experimental studies providing direct measures of response to MTIPs. Qualitative studies with mothers of young children have found that food-related toy premiums stimulate a barrage of requests by children for promoted products that parents must manage (Henry & Borzekowski, 2015; Pettigrew & Roberts, 2006). Cross-sectional studies also suggest an impact of food-related premiums. Longacre et al. (2016) found that McDonald’s restaurants released cross-promotional tie-in toy premiums with kid’s meals three times more frequently than other fast food restaurants, and that young children’s knowledge of fast food toys was associated with a greater frequency of eating at McDonald’s. Emond, Bernhardt, Gilbert-Diamond, Li, and Sargent (2016) found that among 3–7 year olds, greater exposure to commercial television that aired child-directed advertisements for fast food premiums was associated with more frequent family visits to fast food restaurants and the collecting of toy premiums from these restaurants.

Experimental evidence is emerging concerning potential impacts of regulating child-targeted food marketing using toy premiums. McAlister and Cornwall’s (2012) experiment with 3–5 year
olds in the US confirmed that premiums influence children’s appraisals and choice of meals. Toy premiums were more effective in boosting attitudes toward healthier meals than unhealthy meals (which had a relatively high rating even without a premium). Children were most likely to select healthier meals when they were paired with a collectable toy premium and unhealthy meals were not. A limitation of their study was that it did not use meals or toys that were actually available in the marketplace. Their findings also lack generalisability due to the very small sample size (N = 56).

2. Method

2.1. Design and procedure

A 2 (unhealthy meal MTIP: yes/no) x 2 (healthier meal MTIP: yes/no) between-subjects experimental design was employed resulting in four conditions: (A) unhealthy and healthier meals with no MTIP (control condition, analogous to complete ban on MTIPs); (B) unhealthy and healthier meals both with MTIP (current situation in Australia); (C) unhealthy meals with MTIP and healthier meals without MTIP (worst-case scenario); and (D) unhealthy meals with no MTIP and healthier meals with MTIP (potential regulatory model restricting premiums to healthier meals). Using an online methodology, participants were initially shown a short promotional trailer for a current children’s movie followed by either its associated McDonald’s Happy Meal® advertisement (Conditions B-D) or an advertisement for a children’s leisure activity (control condition). Participants were then shown four meal options (two unhealthy and two healthier meals) representing their assigned condition and asked to select which individual meal they would most like to have. Following the meal preference task, participants completed detailed ratings of their preferred unhealthy and healthier meal respectively.

Participants were Grade 1 and 2 students (i.e. the second and third years of formal schooling; age range: 5—9 years; mean age: 7 years) recruited from metropolitan primary schools located in Melbourne, Australia. The reasons for focusing on the junior years of primary school were that: one-in-five young children consume takeaway meals or snacks from fast food outlets at least once a week (Hardy, Mihrshahi, Drayton, & Bauman, 2016); collecting fast food toys is common in this age group (Emond et al., 2016); young children may not effectively recognise the persuasive intent of advertising or apply the critical evaluation required to comprehend commercial messages (Graff, Kunkel, & Mermin, 2012); by Grade 1, children should have sufficient computer skills to complete a simple online questionnaire under supervision. The Socio-Economic Index for Areas (SEIFA) Index of Relative Socio-economic Disadvantage was used to ensure schools from varying socio-economic areas were included (Australian Bureau of Statistics, 2013b).

The study was approved by the Human Research Ethics Committee of Cancer Council Victoria, relevant state education authorities and principals of participating schools. Written parent/carer consent was required for student participation. Students completed the online survey using tablet computers and headphones in small class groups under the supervision of trained research staff. To avoid drawing students’ attention to the experimental manipulation, the initial explanation of the study to students did not make reference to MTIPs, toys or marketing. Instead, students were informed that during the survey they would be asked about their views of different foods, and to give their honest opinions. In order to overcome any limitations in reading and comprehension that Grade 1 and 2 students may have, students were able to hear the questions being read out through their headphones and research staff were available to provide assistance to any students who required additional support in completing the survey. Students were fully debriefed on the study aims at the end of the session, and a letter detailing the study aims was sent home to parents/carers. Data collection was completed during July and August 2014.

2.2. Experimental stimuli

2.2.1. Movie trailer

All participants were shown a promotional trailer for the
children’s 3D computer-animated fantasy action movie How to Train Your Dragon 2. The film, produced by DreamWorks and distributed by 20th Century Fox (Arnold & DeBlois, 2014), follows the adventures of a young adult Viking, Hiccup, and his dragon, Toothless, as they discover and map unexplored lands. It was released in Australia on 19 June 2014 and grossed over US$600 million at the box office globally (Box Office Mojo, 2016). The running time for the trailer was 2 min and 24 s; it can be viewed at [http://www.youtube.com/watch?v=0akZeb6yITY](http://www.youtube.com/watch?v=0akZeb6yITY).

2.2. Advertisements
Participants in conditions B-D were shown the Australian McDonald’s Happy Meal® advertisement associated with How to Train Your Dragon 2. The advertisement shows Hiccup and Toothless flying alongside an animated McDonald’s Happy Meal® box on a wooden-framed dragon before a voiceover states “Fly into McDonald’s for a Happy Meal...” and the McNuggets Happy Meal® (i.e. 3 nuggets, fruit bag and water) is shown with the associated MTIP toy. Those in the control condition were shown an advertisement for Zoo’s Victoria. The advertisement shows children amongst animated landscapes interacting with zoo animals that can be found at three zoos located in or around Melbourne, Australia. It ends with the tag line “All school holidays kids are free. Have a zoo adventure today.” Both advertisements were 30 s in duration.

2.2.3. Meal images
To reduce the influence of taste preference on meal selection, two different Happy Meal® options were presented for each meal type. The two healthier meal options included three chicken McNuggets with dipping sauce, a fruit bag and a small soda or a grilled chicken snack wrap, a fruit bag and a water. The two unhealthy meal options were six chicken McNuggets with dipping sauce, small fries and a small soda or a cheeseburger, small fries and a small soda. A comparison of the nutritional profiles for each meal option is provided in Table 1. The ‘Toothless’ toy, one of eight collectable toys available with the How to Train Your Dragon 2 McDonald’s Happy Meal® promotion in Australia, was used as the MTIP. The full set of meal options for each condition are presented in Supplementary file 1. To control for possible order effects, the presentation of the unhealthy and healthier meal options on screen (left vs. right), as well as the presentation of meal options within meal type, were counter-balanced across participants.

2.3. Measures

2.3.1. Meal preference
First we assessed children's primary meal preference from the four meal options presented in their condition. Participants were presented with their assigned meal options side-by-side on screen and asked “If you had the choice of these four meals, which one would you want the most?”

Next, we assessed children’s secondary meal preference, in order to ascertain each child’s preferred meal from the healthier and unhealthy options. If a child’s primary meal preference was one of the unhealthy meals, they were then shown the two healthier meal options side-by-side and asked “If you had the choice of these two meals, which one would you want more?” Conversely, if a child’s primary meal preference was one of the healthier meals, they were then shown the two unhealthy meal options and asked to select which one they would want more. Children were subsequently required to rate their preferred healthier and unhealthy meal option on more detailed product perceptions.

2.3.2. Product perceptions
Children’s perceptions of their preferred unhealthy and healthier meals were assessed using measures adapted from previous research assessing young children's responses to food promotions (Lapierre, Vaala, & Linebarger, 2011; Levin & Levin, 2010; McAllister et al., 2011). For each meal type, participants were shown their preferred meal and asked: “How much do you like the look of this meal?”, “How do you think this meal would taste?”, “Would you ask your parents for this meal?” and “How would you feel if your parents bought this meal for you?” Participants whose preferred meal included a MTIP, were also asked “How much do you like the look of the toy that comes with this meal?” to check that the premium was well received by students. Responses were recorded on age-appropriate pictorial scales ranging from 1 (frown) to 5 (smile). The order in which participants rated the unhealthy and healthier meal was counter-balanced across participants.

2.3.3. Demographic and other variables
Participants’ gender, age and school grade were recorded. Socio-economic status (SES) was determined according to the SEIFA Index of Relative Socio-economic Disadvantage based on participant's school postcode (Australian Bureau of Statistics, 2013a). Using state quintiles, schools were categorised as low (1st and 2nd quintiles), medium (3rd and 4th quintiles) or high SES (5th quintile). Participants were also asked to indicate: “How often do you eat McDonald’s?” (‘about once a week’, ‘about once a month’, ‘a few times a year’ or ‘never’); “Have you seen the movie How to Train Your

---

**Table 1** Nutritional profile of unhealthy and healthier meal options.

<table>
<thead>
<tr>
<th></th>
<th>Unhealthy meals</th>
<th>Healthier meals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheeseburger, small fries, small soda&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Six chicken McNuggets with dipping sauce&lt;sup&gt;b&lt;/sup&gt;, small fries, small soda&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Grilled chicken snack wrap, fruit bag, water</td>
</tr>
<tr>
<td>Energy (kJ)</td>
<td>2678</td>
<td>2859</td>
</tr>
<tr>
<td>Total fat (g)</td>
<td>26.1</td>
<td>31.9</td>
</tr>
<tr>
<td>Saturated fat (g)</td>
<td>7.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Sugars (g)</td>
<td>29.9</td>
<td>35.6</td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>940</td>
<td>890</td>
</tr>
</tbody>
</table>

<sup>a</sup> Nutritional profile figures are based on the small soda being Coca Cola.

<sup>b</sup> Nutritional profile figures are based on the dipping sauce being barbecue sauce.
2.4. Statistical analysis

Data were analysed using IBM SPSS Statistics 20. Chi-square tests were performed to check that random assignment yielded equivalent demographic groups. As a manipulation check, participant ratings of how much they liked the toy premium were examined using descriptive statistics. To assess whether mean liking of the toy was affected by the type of meals it accompanied, an independent samples t-test was performed on liking of the toy for conditions C and D. In regard to the hypotheses, paired t-tests were conducted to compare students’ ratings of the unhealthy meal to the healthier meal (H1b), while independent samples t-tests were conducted to compare students’ ratings of the unhealthy meal to the healthier meal (H1b), while independent samples t-tests were performed to test for effects of the MTIP on students’ ratings of the healthier and unhealthy meals respectively (H2b). Chi-square tests were used to examine whether the presence of MTIPs influenced meal preference, for healthier and unhealthy meals respectively (H3b). Logistic regression was used to test whether the proportion of students choosing a healthier meal was higher when MTIPs were restricted to healthier meals, compared to each of the other conditions (H3). Additional exploratory analyses were conducted, using logistic regression with interaction terms, to examine if the MTIPs had a differential influence on students’ preference for healthier meals as a function of their gender, school SES and frequency of eating McDonald’s.

3. Results

A total of 904 children (student response rate = 49%) from 15 schools (school response rate = 20%) participated in the study. As shown in Table 2, the sample comprised a similar proportion of boys and girls and students from both grade levels, while a slightly lower proportion were from schools in a high SES location. Approximately half of the students had seen the How to Train Your Dragon 2 movie prior to completing the survey and 47% reported having a Happy Meal® toy associated with the movie. Participants’ demographic characteristics, the frequency they consumed McDonald’s, whether they had seen How to Train Your Dragon 2 and whether they had a How to Train Your Dragon 2 Happy Meal® toy did not vary significantly across conditions, indicating successful randomisation.

3.1. Manipulation check

Overall, children rated the ‘Toothless’ toy premium favourably (mean ratings >4 for both meal types). In conditions where the toy only appeared with one meal type (conditions C and D), there was no difference in ratings of the toy accompanying the healthier (M = 4.30, sd = 1.13) compared to unhealthy (M = 4.20, sd = 1.10) meal (t(443) = 0.97, p = 0.334). Ratings of the toy significantly differed by gender, with boys (M = 4.50, sd = 0.95) providing a more favourable rating than girls (M = 3.98, sd = 1.22, t(443) = 5.06, p < 0.001). Differences in ratings were also observed by school SES (F(2,442) = 3.41, p = 0.034) with post-hoc comparisons indicating students from mid SES schools (M = 4.38, sd = 0.98) rated the toy more favourably than those from high SES schools (M = 4.05, sd = 1.23, p = 0.028). Ratings were consistent for those who reported consuming McDonald’s at least monthly (M = 4.31, sd = 1.03) and those who reported consuming it a few times a year or never (M = 4.17, sd = 1.21, t(443) = 1.31, p = 0.190).

3.2. Meal preference

As hypothesised (H3b), the majority of students (76%) selected an unhealthy Happy Meal® over a healthier one.

Consistent with H2b, children were more likely to select a given meal type when it was paired with a MTIP. When healthier meals were paired with a MTIP, 32% of children selected a healthier meal, compared to 17% when healthier meals were not paired with a MTIP (χ²(1) = 27.89, p < 0.001). When unhealthy meals were paired with a MTIP, 80% of children selected an unhealthy meal, compared to 71% when unhealthy meals were not paired with a MTIP (χ²(1) = 10.40, p = 0.001).

Fig. 1 displays the proportion of children in each condition who

Table 2

Demographic characteristics of participants, by condition.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Control – No Premium (n = 230)</th>
<th>Unhealthy &amp; Healthier Meal Premium (n = 229)</th>
<th>Unhealthy Meal Premium (n = 220)</th>
<th>Healthier Meal Premium (n = 225)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boy</td>
<td>51.7</td>
<td>49.8</td>
<td>53.2</td>
<td>50.7</td>
<td>0.851</td>
</tr>
<tr>
<td>Girl</td>
<td>48.3</td>
<td>50.2</td>
<td>46.8</td>
<td>49.3</td>
<td></td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 1</td>
<td>47.3</td>
<td>43.2</td>
<td>50.5</td>
<td>51.1</td>
<td>0.231</td>
</tr>
<tr>
<td>Grade 2</td>
<td>52.7</td>
<td>56.8</td>
<td>49.5</td>
<td>48.9</td>
<td></td>
</tr>
<tr>
<td><strong>School SES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>32.3</td>
<td>31.9</td>
<td>31.4</td>
<td>32.0</td>
<td>0.856</td>
</tr>
<tr>
<td>Medium</td>
<td>37.8</td>
<td>35.4</td>
<td>41.4</td>
<td>38.2</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>29.9</td>
<td>32.8</td>
<td>27.3</td>
<td>29.8</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency eat McDonald’s</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>About once a week/About once a month</td>
<td>55.1</td>
<td>56.3</td>
<td>55.5</td>
<td>51.1</td>
<td>0.555</td>
</tr>
<tr>
<td>A few times a year/Never</td>
<td>44.9</td>
<td>43.7</td>
<td>44.5</td>
<td>48.9</td>
<td></td>
</tr>
<tr>
<td><strong>Seen How to Train Your Dragon 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>51.0</td>
<td>52.0</td>
<td>49.5</td>
<td>54.2</td>
<td>0.594</td>
</tr>
<tr>
<td>No</td>
<td>49.0</td>
<td>48.0</td>
<td>50.5</td>
<td>45.8</td>
<td></td>
</tr>
<tr>
<td><strong>Have How to Train Your Dragon 2 Happy Meal® toy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>46.7</td>
<td>45.9</td>
<td>43.6</td>
<td>45.8</td>
<td>0.402</td>
</tr>
<tr>
<td>No</td>
<td>53.3</td>
<td>54.1</td>
<td>56.4</td>
<td>54.2</td>
<td></td>
</tr>
</tbody>
</table>
selected unhealthy versus healthier meals. As predicted (H3), children were more likely to select a healthier meal over an unhealthy meal when only the healthier meals were accompanied by a MTIP (40.4%), compared to when there was no MTIP for either meal type (17.4%; OR = 0.31, 95% CI = 0.20 to 0.48, \(p < 0.001\)), a MTIP with only the unhealthy meals (15.9%; OR = 0.28, 95% CI = 0.18 to 0.44, \(p < 0.001\)), or a MTIP with both unhealthy and healthier meals (23.1%; OR = 0.44, 95% CI = 0.30 to 0.67, \(p < 0.001\)).

Exploratory analyses revealed significant interactions between condition and gender (\(p = 0.010\)) and frequency of eating McDonald’s (\(p = 0.014\)) on children’s preference for healthier meals. These interactions are illustrated in Fig. 2. Restricting MTIPs to healthier meals appeared to be especially persuasive in promoting healthier meal preferences among boys compared to girls. Inclusion of MTIPs with unhealthy meals appeared to be especially persuasive in reducing children’s likelihood of selecting a healthier meal among children who ate McDonald’s most frequently. There was no significant interaction between condition and school SES.

3.3. Product perceptions

Across healthier and unhealthy meals, children’s perceptions of the meals were fairly favourable (means of around 4). However, consistent with H3b, children rated unhealthy meals as looking (\(M = 4.48, sd = 0.90\) cf. \(M = 4.11, sd = 1.03\); \(t(903) = 9.33, p < 0.001\)) and tasting (\(M = 4.41, sd = 0.95\) cf. \(M = 4.11, sd = 1.05\); \(t(903) = 7.38, p < 0.001\)) better than healthier meals, and that they would be more likely to ask their parents for these meals (\(M = 4.18, sd = 1.19\) cf. \(M = 3.71, sd = 1.34\); \(t(903) = 9.47, p < 0.001\)) and feel happier if their parents bought them these meals (\(M = 4.41, sd = 0.99\) cf. \(M = 4.06, sd = 1.16\); \(t(903) = 7.99, p < 0.001\)).

Table 3 presents children’s mean ratings of the healthier and unhealthy meals as a function of whether or not these meals were accompanied by a MTIP. The hypothesis that children would rate meals paired with MTIPs more favourably than equivalent meals without a MTIP (H2b) was supported for healthier meals, but not for unhealthy meals. Consistent with H2b, children rated healthier meals accompanied by MTIPs as looking and tasting better, that they would be more likely to ask their parents for these meals, and that they would feel happier if their parents bought these meals, compared to healthier meals with no MTIP. However, contrary to H2b, children’s ratings of unhealthy meals were comparable irrespective of whether they were accompanied by a MTIP.

Fig. 1. Proportion of children who selected unhealthy versus healthier meals by condition. Notes: ‘ reference category for logistic regression analysis; ‘*’ \(p < 0.05\); ‘**’ \(p < 0.01\); ‘***’ \(p < 0.001\).

Fig. 2. Proportion of children in each condition who selected healthier meals by gender and frequency of eating McDonald’s. Notes: ‘ reference category for logistic regression analyses; ‘*’ \(p < 0.05\); ‘**’ \(p < 0.01\); ‘***’ \(p < 0.001\).
were more dramatically affected by toy premiums than attitudes toward fast food meals. Nonetheless, we did find that MTIPs accompanying unhealthy meals served to increase the proportion of children who selected an unhealthy meal, even though the magnitude of this effect was smaller than for healthier meals. Notably, inclusion of MTIPs with unhealthy meals appeared to be especially persuasive in prompting children to select an unhealthy meal among children who ate McDonald’s most frequently. Perhaps these children’s previous experience of Happy Meals® being paired with free toys (associative learning) made them even more inclined than children who rarely ate McDonald’s to select an unhealthy meal with a bonus toy over a healthier meal with no free toy.

Consistent with prior research on toy premiums (Hobin et al., 2012; McAlister & Cornwell, 2012), children in this study were most likely to select a healthier meal over an unhealthy meal if the MTIP was restricted to healthier meal options. Restricting MTIPs to healthier meals appeared to be especially persuasive in promoting healthier meal choices by boys compared to girls. This could have been because the toy appealed more to the boys. However, our results echo other research suggesting boys may be more receptive to certain forms of food marketing (Anschutz, Engels, & Van Strien, 2009; Dixon et al., 2014). Overall, findings help validate Otten’s (2014) argument that from a public health perspective, toy premiums should only be distributed with meals meeting certain nutritional criteria, and Kraak and Story’s (2015a) contention that entertainment companies should only use child-targeted characters to market healthy foods. Rather than ban food-related premiums altogether, findings support the use of these promotions as vehicles for promoting healthier meal choices to children. Based on past experience, mandatory regulation, rather than industry self-regulation, would be the more secure path to ensuring such marketing restrictions are implemented (Cheyne, Mejia, Nixon, & Dorfman, 2014; Kraak & Story, 2015a). However, it is crucial that such regulations are carefully worded to avoid potential loopholes such as restaurants being allowed to sell toys separately with the purchase of a children’s meal (as occurred in San Francisco in response to their ordinance that only prohibited the giving away of toys) (Otten et al., 2014).

A unique strength of the present study was that by being timed to coincide with an actual MTIP, it was able to harness the marketing momentum surrounding a popular, current movie and its appealing child-targeted characters, thus more closely simulating the hype surrounding a real-world MTIP than previous experimental studies. These findings with Australian children in the context of a current, real-world MTIP, where toy premiums were accompanied by exposure to the associated advertising and movie trailer, add weight to previous experimental, cross-sectional and self-report studies which suggest that food-related toy premiums do influence children (Emond et al., 2016; Henry & Borzekowski,
manage (Henry & Borzekowski, 2015; Pettigrew & Roberts, 2006). Given the food industry’s level of investment in MTIPs the impact of these promotions may be considered self-evident. However, public health-oriented research in this field allows public scrutiny of potential detrimental impacts of such marketing, as well as examination of potential ways of reconfiguring the food-marketing environment to be more health-promoting. Such evidence is vital in guiding policy advancement. It is important to note that the ‘healthier’ meal choices offered in this study, were by no means gold standard in terms of nutritional criteria. However, they represented an improvement on the more unhealthy traditional Happy Meals. While it may be optimal from a nutritional perspective for children to avoid eating fast food meals altogether, in reality consumption of fast food by children is prevalent worldwide. Our findings suggest that in contexts where children are going to be choosing a fast food meal, MTIPs accompanying healthier meals have potential utility in facilitating healthier meal choices and meal requests to parents.

Parents experience heavy pester power from their children in relation to food-related toy premiums that can be challenging to manage (Henry & Borzekowski, 2015; Pettigrew & Roberts, 2006). Parents also support the practice of fast food restaurants offering some healthier children’s meal options (Henry & Borzekowski, 2015). Restricting MTIPs to healthier meal options could help to realign children’s meal preferences and requests with what health conscious parents would prefer for their children. Parents would likely welcome initiatives that help divert children’s pester power away from unhealthy meals and render healthier food choices more appealing to their children. Making it permissible to use MTIPs to boost sales of healthier children’s fast food meals relative to unhealthy options should also serve as an incentive to fast food chains to offer healthier meal options on their menus.

We are mindful that some researchers and advocates for children and parents question the ethics of allowing use of child-targeted food-related premiums at all. These concerns center on children’s inherent vulnerability to be influenced by advertising, rendering it unethical to exploit this vulnerability to promote any product. Consequently, in some jurisdictions, most forms of child-targeted advertising are prohibited (World Cancer Research Fund International, 2016). Another concern is that linking toy incentives with healthy or unhealthy foods could promote food as entertainment or distraction (rather than sustenance), leading to a distorted relationship with food. In an ideal world, avoiding use of food-related premiums may be optimal practice. However, in a real-world food marketing environment, where children are already being manipulated by industry marketing to favour unhealthy foods, we believe the more pragmatic approach of using premiums to promote healthier food choices could offer a more politically acceptable alternative than a complete ban while still helping to advance public health goals.

The present study was concerned with exploring potential regulatory scenarios in relation to common food-related toy premiums. At this stage, it is unclear whether for other forms of food marketing (e.g. conventional product advertising on TV), restricting promotions to healthier products versus prohibiting any such food promotion, would be most beneficial in promoting healthier food choices by children. For example, studies testing brief exposure to TV programming with no food ads versus healthy food ads (Boyland, Kavanagh-Safran, & Halford, 2015; Dixon, Scully, Wakefield, White, & Crawford, 2007) have found mixed evidence as to whether restricting food advertising to healthy products promotes greater preference for healthier foods. Furthermore, Boyland et al. (2015) found that ads for healthy meals that featured branding by a well-known fast food chain increased liking for fast food generally. Future research could elucidate this issue by exposing children to higher ‘doses’ of healthy food advertising alone, or in combination with unhealthy food advertising versus a control condition with no food advertising, and assessing impacts on children’s food preferences. Varying the brands associated with the foods advertised would also be helpful.

5. Limitations

A limitation of this study was that, due to the online methodology, the meal preference task was simulated rather than actual. However, similar findings for meal preference were found in Hobin et al.’s (2012) experiment where children actually received meals that they chose. In the present study, children’s self-reported attitudes and perceptions of the meals and MTIP toys aligned with their stated meal preferences, helping to validate findings for the simulated meal preference task. Analysis of sales and consumption data from jurisdictions where regulations restricting MTIPs to healthier meals are introduced would provide valuable, additional, objective assessment of the effectiveness of various regulatory models.

Another limitation of using meal preference as the outcome measure is that we could not assess whether children would actually eat the meal they selected. For parents of children who are fussy eaters, there may be tension between allowing their child to choose an unhealthy meal that their child will eat, versus selecting a healthier meal that their child may not actually eat. While restricting MTIPs to healthier meals prompted more children to select healthier meals, we cannot be certain of how these preferences would impact children’s actual consumption. To address this point, future studies could include choosing ‘no meal’ rather than one type of meal (healthier versus unhealthy) as a viable response option. It would be optimal to assess not only initial meal choice (unhealthy meal, healthier meal or no meal), but whether the child goes on to eat the meal (if they initially selected one).

Finally, the MTIP used in the study was more appealing to boys than girls and as such may explain why the MTIP was especially persuasive in promoting healthier meal preferences among boys. Future research could benefit from replicating the findings using a gender-neutral MTIP or two gender-specific MTIPs.

6. Conclusions

Findings from this study, which assessed children’s responses to fast food MTIPs under various regulatory scenarios, strengthen the case for regulating food industry use of toy premiums to market foods to children. From a public health perspective, toy premiums should only be permitted to accompany healthier food choices. This evidence may be used by policy makers, advocates and practitioners to inform their work in trying to reshape the food marketing environment to foster healthier food choices by children.

Acknowledgements

This study was funded by Cancer Council Victoria, Australia. We thank the students and participating schools for their involvement in the study.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.appet.2017.07.014.

References


Christian, M., & Geref

How to train your dragon 2 [motion picture]...