

Effects of Fast-Food Branding on Children's Taste Preferences

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Health authorities and public communities state that fast-food marketing is the most recognized potent force for contribution to childhood obesity. Much research has focused on the influence of television commercials on children's eating behaviours, thus this study explore the effect of fast-food branding on children's taste preferences. Sixty preschool children between three and six years old ($M = 4.6$, $SD = 1.2$) were grouped into Non-obese, Obese and overweight, according to their BMI values based on WHO classification. The study was divided into two stages. The initial stage comprised of a survey distributed to parents collecting information on family's fast-food consumption habits. The second stage was an experiment designed to determine the effects of food packaging. Participants tasted three pairs of identical foods (burgers, nuggets and carrots) presented in either popular fast-food brand or neutral unbranded packaging before indicating whether the two tasted the same, or if one tasted better. Results reviewed that 63.3% of the participants preferred food presented in popular brand packaging. Furthermore, no differences were found between the groups across three food products [$\chi^2 (2, n= 60), p>.05$]. Irrespective of the child's weight status, food branding has an influential role on children's food choice. Given that most marketed food is high in sugar and fat, whether similar marketing strategy could be used to brand more nutritious products should be investigated. Findings imply that advocates should use a behavioural marketing approach to brand the incentives of eating fruits and vegetables among children.

Keywords: childhood obesity, taste preferences, brand recognition

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Effects of Fast-Food Branding on Children's Taste Preferences

Childhood obesity is defined as a condition in children who have excess body fat that negatively affects a child's well-being (World Health Organization [WHO], 2010). This disorder is a world-wide epidemic with nearly 42 million children under the age of five reported overweight, and this figure increases every year in developed and developing countries (WHO, 2010). Child obesity statistics have proven that the epidemic is no longer as issue within North America, but also affects Malaysia (WHO, 2010).

This alarming trend should be of particular concern to health authorities and public communities. As children are an important asset of countries, this disorder brings about adverse impacts, both physically and psychologically as it is associated with higher mortality

rate in adulthood (Reilly, Methven, McDowell, Hacking, Alexander, & Kelnar, 2003; WHO, 2011). Thus, many studies have been conducted to identify the contributing factors of childhood obesity (Anderson, Butcher, & Levine, 2003; Giammattei, Blix, Marshak, Wollitzer, & Pettitt, 2003; Kaiser Family Foundation, 2006; Strauss & Knight, 1999). Although results show that childhood obesity has multiple aetiologies, WHO and the Food and Agriculture Organization (FAO) of the United Nations concluded that marketing from fast-food chains is the most recognized potent force for contribution to childhood obesity (Fleck, 2003).

Food marketing to children is widespread. Various modes of food advertising bombard children with food-related messages via television, radio and newspaper. Scholars have suggested that the influential forces of media advertising and marketing have measurable impact on children's perception on food consumption (Acuff & Robert, 1997). This is because the main goal of marketing is to instil brand recognition of particular products and logos among children. It was reported that by the age of two, children developed beliefs about specific brands and as they grow older they are able to associate products with brand names, packaging, and logos (Fischer, Schwartz, Richard, Goldstein, & Rohas, 1991; Hite & Hite, 1995; Macklin, 1996; McNeal, 1992; Rust, 1993). By mid-childhood, they can differentiate brands of child-oriented products (Fischer et al., 1991). Interestingly, brand awareness and recognition can be translated into product requests. Testing in young children pestering parents for specific items (Macklin, 1996). Using this obtained knowledge, food industries are able to produce food "messages" that encourage the increased consumption of high-fat, high-sugar foods (HFSS) which can profoundly impact a child's eating habits and weight status (Fleck, 2003; Horgen, Choate, & Brownell, 2001; Schwartz & Puhl, 2003; Wadden, Brownell, & Foster, 2002; WHO 2010). It is therefore undeniable that the food industry has successfully created a highly obesogenic environment.

Research has found that types of branding, packaging, associated logos and licensed characters can affect consumers' perception about the food and can subsequently affect young children's taste perception, consumption habits and even later, purchases of the food (Roberto, Baik, Harris, & Brownell, 2010; Robinson, Borzekowski, Matheson, & Kraemer, 2007; Schwartz & Puhl, 2003;). Further studies reveal that the soaring rates of obese children were due to their innate propensity to respond to external food advertising cues (Bruce, Lepping, Bruce, Cherry, Martin, Davis, & et al., 2012). Several studies support this notion by demonstrating that obese children have higher brand awareness and are more likely to respond to external food cues (i.e. food branding, meal and packaging

manipulation) than their leaner counterparts (Carnell & Wardle, 2008; Halford, Boyland, Hughes, Stacey, McKean, & Dovey, 2008). However, conflicting evidence revealed that obese children did not consume more than non-obese individuals when meals were branded with famous food logos (Keller, Kuilema, Lee, Yoon, Mascaro, Combes, Deutsch, & et al., 2012). Similar replication done in preferences for sweet beverages and food products also revealed no significant preferences between non-obese and obese individuals (Grinker, 1978; Frijters & Rasmussen-Conrad, 1982). Such inconsistent findings warrant further investigation to understand how children respond to food branding and marketing.

Having said that, because of inadequate education on parenting in regard to healthy food consumption in children, many young children have become obese (and/or overweight) with increased susceptibility to cardiovascular diseases (e.g., ischemic heart disease), psychosocial issues (e.g., concerns about social image in schools) and other physical diseases such as diabetes mellitus (Harrell, Gansky, McMurray, Bangdiwala, Frauman & Bradley, 1998; Locard, Mabelle, Billette, Miginiac, Munoz, & Rey, 1992; McGarvey, Keller, Forrester, Williams, Seward, & Suttle, 2004). As a result, legislation has been introduced in Malaysia and other countries like China, India, Norway and Sweden to regulate HFSS food branding and advertisement (Dharmender, 2007). However, to date, there are still no restrictions or limitations as to how marketers utilise brandings, epicenes characters and packaging to influence taste preferences among young consumers (Ogba & Johnson, 2010).

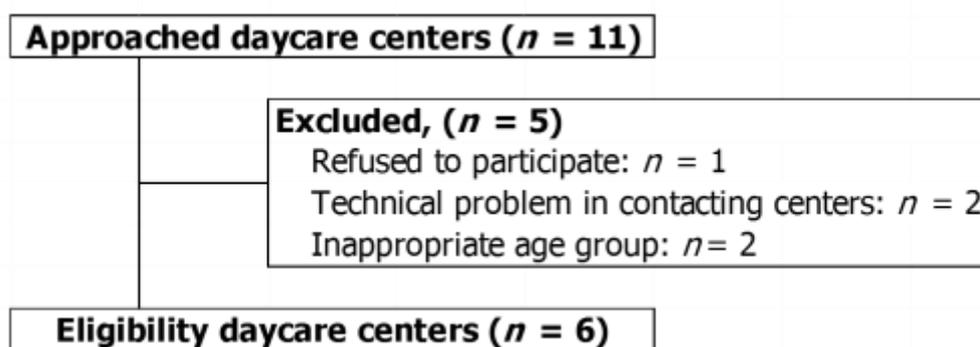
Hence, it is desirable to examine the effects of the broader, cumulative, real-world marketing and brand exposures that young children experience. The current experiment was designed to investigate whether preschool children's taste preferences were influenced by branding from a heavily marketed source. To do so, child participants were invited to taste identical foods in packaging from a popular fast-food brand (Brand M) and in matched but unbranded packaging to indicate if they tasted the same or if one tasted better. Brand M was chosen because of its extensive marketing (Malaysian Franchise Association, 2006). The primary aim was to determine whether children between 3 and 6 years would prefer the taste of foods they perceived to be from Brand M compared with the same foods without Brand M's branding. In doing so, association between taste preferences with body weight was examined – by comparing groups of (1) non-obese and (2) overweight and obese individuals. It was hypothesized that children who are overweight and obese would prefer food that is wrapped with popular fast-food brand packaging compared to non-obese individuals.

Method

Sample

Participants were recruited from daycare centers identified via a web directory. The centers were excluded if the center had inappropriate age group or is not registered under the Companies Commission of Malaysia. Total 11 daycare centers were identified within the Damansara subdivision of the Petaling district; ineligibility resulted in 6 centers (shown in Figure 1).

Figure 1. Selection flowchart.



Participants

Sixty preschoolers comprising 33 males and 27 females, aged between three and six ($M = 4.6$, $SD = 1.2$) from different ethnicity – Malay (3.3%), Chinese (83.3%), Indian (8.3%), and other races (5.0%) were recruited from six daycare centers in Petaling Jaya. Upon parental consent, each preschooler participated in the study together with a parent.

The participants recruited were grouped into obese and non-obese groups based on BMI values set by guidelines in WHO. Participants with a $BMI \leq 25$ were categorized into the non-obese category, and a $BMI \geq 25$ in the overweight and obese category. However, to be more accurate, it was suggested to use the age-and-sex specific percentile for BMI to determine a child's weight status; this is because children's body composition varies in terms of age and gender (Center for Disease Control and Prevention, 2012). Thus, WHO (1995) recommended the NCHS Median +2SD reference weight-for-height to determine overweight and obesity in boys and girls. The 85th and 95th percentiles of the body mass index (BMI) reference was proposed as cut-off points for "at risk of overweight" and "overweight" respectively (Cole, Bellizzi, Flegal, & Diets, 2000).

The mean BMI in the children's sample was 16.5 ($SD = 3.3$). Females had a mean BMI of 17.1 ($SD = 4.1$), and males had a mean BMI of 16.1 ($SD = 2.3$) respectively. A

breakdown of BMI category based on WHO standards divided the participants into two groups – (i) non-obese children ($n = 45$) (ii) overweight and obese children ($n = 15$). Detailed demographic information is presented in Table 1.

Table 1. *Demographic Characteristics of the 60 Preschool-Aged Child Participants*

Descriptions	Males	Females	Total
Gender (%)	33 (55.0%)	27 (45.0%)	60 (100%)
Mean Age (years)	4.7	4.4	4.6
Mean BMI (kg/m ²)	16.1	17.1	16.5
Classifying Weight Status			
Non-obese	26 (78.8%)	19 (70.4%)	45 (75.0%)
Overweight and Obese	7 (21.2%)	8 (29.6%)	15 (25.0%)
Ethnicity			
Malay	1 (3.0%)	1 (3.7%)	2 (3.3%)
Chinese	30 (90.90%)	20 (74.1%)	50 (83.3%)
Indian	1 (3.0%)	4 (14.8%)	5 (8.3%)
Others	1 (3.0%)	2 (7.4%)	4 (5.0%)
Favorite Fast-Food Product			
Burger			12 (20.0%)
Nuggets			15 (25.0%)
Fried chicken			5 (8.3%)
Fries			14 (23.3%)
Ice cream			8 (13.3%)
Soft drinks			3 (5.0%)
Pizza			3 (5.0%)
Frequent Fast-Food Consumption			
Almost everyday			1 (1.7%)
2 – 4 times a day			4 (6.7%)
2 – 4 times every two week			10 (16.7%)
2 – 4 times in a month			34 (56.7%)
2 – 4 times in a year			11 (18.3%)

Research Design

Similar to a study conducted by Robinson et al. (2007), this study utilized a quasi-experimental design to explore the impact of food marketing on children's taste preferences. The current study examined the relationship between fast-food branding and taste preferences in relation to childhood obesity – specifically comparing the groups of non-obese

and overweight and obese individuals. The independent variables were (i) obesity – treated as natural occurring variable and (ii) food products wrapped with different packaging (one from a popular fast-food chain (Brand M), and one from a neutral wrapper without a recognized fast-food chain's branding packaging). The dependent variables are children's taste preferences across the food products. This research has received ethics approval from the IMU Research and Ethics Committee.

Materials

Basic Demographic Information. A questionnaire that includes the child's age, gender, ethnicity, language preferences, height, weight, food allergies, and medical history was distributed to each representative of either one of the parents.

Fast-Food Branding and Taste Preferences Questionnaire. It should be noted that the conceptual definition of fast-food is any prepared food from a restaurant that specializes in providing a full 'meal' in a few minutes. Such a meal often consists of a permutation of hamburger or chicken, French fries, and a soft drink or a milkshake (Farlex, 2011). Specifically, the current study will consider fast-food as any food products from chain outlets. Sample questions are: "How frequently would you and your child eat fast-food?", "What is your child's favorite fast-food outlet?", and etc.

Food Product. Two pairs of identical foods were presented to each child participant. The two study foods were (1) chicken burger (serving size: 1 whole product [155g]; 365kJ, 525mg of sodium) and (2) chicken nugget (serving size: 6 pieces [120g]; 346kJ, 534mg of sodium). Half of the burger was wrapped in its original Brand M's packaging; the other half was wrapped in a matched but unbranded packaging. Similar procedure applied to the chicken nugget. As a control, baby carrots, which were not originally found of Brand M's menu were wrapped with Brand M's wrapper and an unbranded packaging.

For all three food products, the two packaging's had the same color, material, shape, font, and design. All packaging did not include additional markings such as images of cartoon characters or additional graphics. It should also be noted that only unused (not previously in contact with food) Brand M's and unbranded packaging were used so there would be no residual smell or taste, and for hygiene purposes. The role of the participant was to indicate if the foods tasted the same or if one tasted better.

Procedure

With the help of the daycare centres' principals, parental consent was obtained from each child's parent. The Fast-Food Branding and Taste Preferences questionnaires were distributed to the participants' parents prior to their attending the experiment.

At the daycare centre, a room was provided to conduct the experiment. Before the experiment, each participant was asked if they wanted to play a food tasting game – they were aware that they could stop at any time. Instructions were given in English, Malay and Chinese languages as appropriate.

Each child was seated at a table with a tray in front of them. Three pairs of food were presented. The foods were (1) half of a chicken burger, (2) two pieces of chicken nuggets, (3) and a baby carrot. Each food had been pre-wrapped with a popular fast-food chain's packaging, and the same food was wrapped with equally attractive packaging (gender "neutral" wrapper like number of stars, number of alphabets) but did not resemble any fast-food chain's packaging. .

The order of food presentation and placement of the wrapped food on the left or right followed a predetermined order (via random assortment) for each child and each food. After placing the two food samples on the tray, each child was asked to taste the food that was wrapped by Brand M's wrapper by saying "Now, take one bite of this food". After the child had chewed the food properly, only then did the researcher continue the experiment by pointing to the food that was wrapped with neutral wrapper by saying "Now, take one bite of this food". The child was then asked to state their preference. "Tell me if they taste the same, or point to the food that tastes the best to you." Children's responses were recorded in a checklist, and the procedure was repeated for each food. These steps were repeated in a predetermined random order with each child.

Lastly, the child was asked, "Can you tell me which of these foods is from a fast-food chain?" To ensure that the experimental manipulation was apparent to the child, the researcher did not indicate or say anything more if the child did not answer, answered incorrectly, or correctly identified the food or drink in the Brand M's wrapping.

Data Analysis

The data analysis involved basic descriptive statistics (i.e. percentage, standard deviation, and mean) to explore basic demographic information. In addition, Chi-square test

was used to investigate the effects of branding on taste preferences between lean and overweight and obese individuals.

Results

Demographic data indicated that 71.7% of the participants frequently visited Fast-food brand M and 65% of them rated it as their favourite fast-food chain. The top three favourite fast-food products were nuggets (25.0%), burger (20.0%), and French fries (23.3%), which can all be found in Restaurant Brand M. Results showed that most of the participants (56.7%) consumed fast-food on a regular basis, which was about two to four times in a month. For detailed description, refer to Table 1.

Table 2 summarizes the analysis of children's taste preferences to packaging of popular branding and non-popular branding on identical food products. It was demonstrated that the majority of the participants (85%) were able to correctly identify the food products in Brand M's wrapper. Fifty-eight percent of the participants preferred the chicken burger wrapped in Brand M's wrappers. Similarly, preference for chicken nugget wrapped in Brand M's wrappers was highly preferred by most participants (73.3%). Interestingly, baby carrot which was not a product of Restaurant Brand M was highly preferred (65.5%) over chicken burger which was the original product of Restaurant Brand M. The results suggest that even though food products were identical, children highly preferred food products that were from popular brand packaging.

Table 2. *Popular Fast-Food Chain on Children's Taste Preferences*

Branding on Taste Preferences of the Food Products (n = 60)				
	Chicken	Chicken	Baby Carrot	Total Mean
Prefer food wrapped with	35 (58.3%)	44 (73.3%)	39 (65.0%)	38 (63.3%)
Prefer food wrapped with	15 (25.0%)	13 (21.7%)	12 (20.0%)	14 (23.3%)
No preferences/do not answer	10 (16.7%)	3 (5.0%)	9 (15.0%)	8 (13.3%)
Brand Recognition				
Yes				51 (85.0%)
No				9 (15.0%)

Chi square analysis was used to examine if overweight and obese children are more likely to prefer food products that are of popular fast-food brand as compared to non-obese children. Table 3 shows that non-obese and overweight and obese children have no

significant differences in taste preferences across the three food products of different packaging. Across the three food products, chi-square analysis revealed that chicken burger [$\chi^2 (2, n = 60) = 2.30, p = .32$], chicken nuggets [$\chi^2 (2, n = 60) = .87, p = .65$], and baby carrots [$\chi^2 (2, n = 60) = 2.33, p = .31$] were all not significant as $p > .05$. Thus, this allows us to reject the hypothesis that overweight and obese children will significantly prefer food products that were wrapped with popular fast-food brand packaging compared to leaner individuals.

Table 3. Comparing Effects of Fast-Food Branding on Taste Preferences of Non-obese and Overweight and Obese Children

	Brand M	Neutral	No	Chi Square	(<i>p</i>-value)
Chicken Burger	35	15	10	2.298	.317
Chicken Nugget	44	13	3	.873	.646
Baby Carrot	39	12	9	2.325	.313

Discussion

In the modern era, our eating habits, food preferences, food choices and even food consumption patterns have changed tremendously due to environmental influences (St-Onge, Keller, & Heymsfield, 2003). St-Onge et al. (2003) pointed out that environmental influences in eating behaviours include the changing nature of the food supply; increased reliance on foods consumed away from home; food advertising, marketing, and promotion; and food prices. Furthermore, with increasing work demands to maintain and higher living standards, more families require both parents to work (St-Onge et al., 2003). This evolving trend causes busy parents to opt for the types of foods that are quick to prepare and convenient to purchase for family consumption. The food industry responded to these new family issues by increasing the availability and numbers of prepared foods that are mostly high in sugars and fats (Schluter & Lee, 1999). In fact, various studies that have been carried out to investigate children's meal consumption patterns and factors influencing food choices reveal that fast-food outlets are the most recognized potent source in shaping children's quality of diet (Jahns, Siega-Riz, & Popkin, 2001; Nielson, Siega-Riz, & Popkin, 2002; Fleck, 2003). A recent study conducted by Habib, Dardak and Zakaria (2011) on consumer preference and consumption of fast-food in Malaysia reported that 84.5% of respondents purchase and consume fast-food on a regular basis. Even though this study reported only 56.7% of children visit fast-food restaurants 2 – 4 times a week, the figure is

not a relatively small number and it requires attention from public communities and health authorities to realise that fast-foods are gradually replacing our daily portion of healthy meals. Health authorities become fast-food industries for the epidemic disease of childhood obesity (Brownell & Horgen, 2004; IOM, 2005).

The Malaysian government makes labelling nutritional values on all foods and drinks compulsory and sin tax is levied to curb rising fast-food consumption. So many industry players feel they are being unjustifiably penalized and deny targeting children with promotional gimmicks (Goh, 2007). Many studies have been conducted on how actual food branding of products influences children's taste preferences and consumption habits, and results reveal that young children are susceptible to subtle marketing strategies applied by food industries (Robinson et al., 2007; Roberto et al., 2010; Schwartz & Puhl, 2003). In line with past research, the current study suggests that children's preference for the taste of a particular food product increased when it was packaged with a popular brand. Across the three food products, over 60% indicated foods wrapped with Brand M's packaging tasted better, almost one third indicated foods wrapped with neutral wrapper tasted better. Interestingly, although carrots were the least preferred food in the experiment, participants reported carrots packaged with Brand M's wrapper tasted even better than burgers. The fact that carrots, a food that was not marketed by Brand M adds to the notion that brand identity is capable in influencing young children's taste perception by the early age of three to five. Hence, this study provides empirical evidence illustrating a relationship between the impact of food packaging of a certain brand and children's reported taste preferences

Malaysian Franchise Association (2006), reported that Brand M is one of the top ranking preferable fast-food brands. Similarly, results from the pilot study reported Brand M as the most preferred fast-food outlet among young children. Hence, Brand M's branding was used in this experiment because of its leadership in fast-food advertising and marketing. In this research, parents of the three to six-year-olds revealed that their children were eating food from Brand M weekly or more often. Moreover, food products such as French fries, burger, and nuggets that are readily available in any local Restaurant Brand M were significantly preferred by young children in this sample. Though it was not possible to objectively measure total past exposure to Brand M's marketing, these reports indicate that the children were receiving substantial amount of exposure to this particular brand. Along this line, Robinson et al. (2007) stated that frequent consumption of food products from a particular brand outlet suggests greater opportunities for brand exposure and prior taste experiences and hypothetically signifies familiarity, credibility of the source, safe

provenance, and implicit approval by parents. Consistent with past research, the current study support that food promotion can increase children's food preferences, and that an advertised brand has greater preference over a non-advertised brand (Gorn & Goldberg, 1980; Heslop & Ryans, 1980; Borzekowski & Robinson, 2001).

The current study was that overweight and obese children would prefer foods that are wrapped with popular fast-food brand packaging, but the preliminary findings revealed no significant differences between these variables. The existing literature has suggested that this could be due to children's intrinsic food preferences rather than food brand packaging. Research has explained that some children were born to have an innate preference for naturally sweet and/or sour foods that can influence the way in which they choose their food (Birch & Fisher, 1995; Birch & Fisher, 1998). Several studies also demonstrated that increased exposure to palatable high-fat foods can increase children's consumption of high-fat foods (Wurtman, 1984) and increased appetite for sweet or high-fat foods are linked to increased susceptibility to obesity and risks of cardiovascular diseases in their adulthood (Schemmel, Mickelson, & Gill, 1970; Sclafani, 1986; Lucas & Sclafani, 1990). If these theorists are correct that children have innate/intrinsic food preferences, then this is an important risk factor for weight gain and obesity (Drewnowski, Brunzell, Sande, Iverius, & Greenwood, 1985; Rodin, Radke-Sharpe, Rebuffe-Scrive, & Greenwood, 1990).

Some research supports the hypothesis, that there are no differences between obese and leaner individuals in their liking for sweetness in food products and subsequent food intake in relation to brand exposure (Grinker, 1978; Keller et al., 2012). Because this finding is in contrast to reports from previous work (Carnell et al., 2008; Halford et al., 2008), the differences in findings could be attributed to the relatively small sample in this study that lacks power to detect a true effect. However, unlike the aforementioned studies, the current study attempts to adjust for potential confounders by exploring a child's previous experience with a particular food brand and later carries out the experiment using Brand M's packaging to investigate the child's responses. The methodological procedure that was underemphasized in previous studies might have produced different findings. Hence, future studies should address this issue by replicating in larger cohorts and adjust for potential confounders like children's previous brand exposure and familiarity of logos. Apart from methodological aspects, the differences in result findings may also be due to gender differences that males had greater preferences for low-carbohydrate and high-fat-protein foods than females (Drewnowski et al., 1985; Mela, 1996).

In regards to brand recognition, the majority of pre-schoolers in this research were able to identify foods wrapped with popular fast-food brand packaging (i.e. Brand M). Previous studies indicate that children under two-years were able to recognise and associate products with brand names, packaging, characters and logos (Fischer et al., 1991; McNeal, 1992; Rust, 1993; Macklin, 1996). Nevertheless, it is essential to investigate brand recognition between genders in a future study. This is because if there are significant differences in brand recognition between genders, researchers can gain a better insight into the strategic marketing techniques and utilise the information obtained to increase healthy eating behaviours according to gender-related preferences. It is equally important to note that the amount of television-viewing among children denotes the possibility of better fast-food brand recognition which can be a threat to children's health (Gunnarsdottir & Thorsdottir, 2010). According to the Institute of Medicine (2005) report, most food commercials screened during children's television programming comprised of high-energy and low-nutrient foods and beverages, in other words, high in fat, salt and sugar. These food-targeted commercials aimed at children inevitably will affect their future food preferences, consumption patterns, and food choices (Malaysian Franchise Association, 2006; Gunnarsdottir & Thorsdottir, 2010). Hence, future studies should investigate the relationship between television viewing and food preferences among children to raise awareness about the influential power of fast-food advertisement. This can also encourage private companies to use popular brands, child-oriented licensed cartoons or other real-life spokes characters to introduce healthy food in a more appealing manner (Gunnarsdottir & Thorsdottir, 2010).

Limitations and Future Research

As to whether children prefer food and beverages if they think they are from popular fast-food chain (i.e. Brand M) has been addressed in this research. Unlike many researches that sought to explain impacts of food advertising, this study was designed to capture the influences entirely on Brand M's brand exposure, including direct and indirect marketing, that as young as three-year-old children have been predisposed to. In this experiment, only branding was manipulated. Packaging of matched colour, design, and shape together with original servings of food products were used. In fact, the packaging was a basic packaging with no other markings or brand logo image that can potentially influence a child's brand.

This research has addressed the issue of real-word marketing in a straightforward manner. However, this research has a small sample size. Future research should consider the utilization of larger sample size to ensure greater generalizability of the research

findings. Another limitation is the potential awareness of experimental manipulation by the participants. This means that marked effects observed in short-term behaviours in experimental situations may not be as apparent in actual eating habits within real life situations. As the investigation of the study examined the association of the child's current weight status in relation to branding effects on taste preferences, longitudinal design should be adopted to establish more solid foundation on the causal aspects of branding strategies towards children's taste preferences.

Practical Implications and Conclusion

Overall, this research provides an insight into the effects of branding on taste preferences among children aged between 3 to 6 years. The results indicate that children's taste preferences were affected by the power of branding. Even though this study revealed that there were no differences between these associations with individuals' body-weight status (i.e. non-obese and overweight and obese groups), children as a whole preferred food products that were of a popular brand. Thus, further studies should explore the effects of popular branding using healthy food on children's taste preferences. This suggests that advocates for healthy eating may take this information to brand or package more nutritious products in ways that make such products appealing to young children. Children in this study claimed that carrot which is not product of the popular fast food chain (i.e. Brand M) when compared with brand M's packaging, tested better compared to the unbranded packaging. Besides, the present study also showed brand recognition starts early in children's development, suggesting that age is an important predictor of brand awareness and preferences. However, brand recognition might differ between genders. Thus, future research should explore features related to gender-related preferences in recall and recognition tasks, as it can offer new insight to the mysteries of marketing strategies.

Practically, health campaigns may utilise strategies based on findings from the current study. As the current study identified that branding can influence taste preference, it may be useful to employ similar branding techniques on healthy foods with high nutritional values. This may help nutritionists and practitioners in health promotion to advocate and implement similar strategies in branding and marketing of healthy foods. As cardiovascular disease is still the major cause of death in westernised countries and in Malaysia, the World Health Organisation (2003) recognised the importance of research in strategic branding and television advertisements. Studies in understanding this relationship may help nutritionists

and health practitioners in designing educational based programmes that integrate experimental results involving affective and emotional learning. As young children learn differently from adults, educational programs should be strategic. Employing strategic branding on healthy foods may be a novel and effective way of helping children develop healthy eating habits and lifestyles from an early age.

To conclude, the current study adds to our understanding about children's food preferences in relation to branding. This understanding is beneficial for practising professionals in health promotion, and future studies should further explore this relationship.

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