Understanding the Impact of Online Food Advertisements and Emotions on Adolescentsô Food Choices

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Understanding the Impact of Online Food Advertisements and Emotions on Adolescents' Food Choices[1]

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Abstract

Adolescence is a critical period for future health outcomes. Food habits and cognitive development are underway, and it is a period of heightened sensitivity to external influences and emotional shifts. We investigate experimentally the individual and combined influence of positive, neutral, and negative emotions and online food advertisements on food choices in a sample of adolescents. Participants completed a food choice task, selecting five snacks out of twenty healthy and unhealthy options. To induce experimental variation in adolescents' emotions, they were assigned to watch two two-minute film clips validated to elicit the targeted emotion. With a second experimental treatment, we randomized whether adolescents were exposed to unhealthy food or non-food online advertisements.

JEL Classification: C99, I12, M37, Q13

Keywords: Emotions, Advertisement, Food choices, Online experiment

1 Introduction

Adolescence is a transitional stage of physical and physiological development where patterns of adult health are established (Sawyer et al., 2012) Behaviors and food habits form during adolescence (Alberga et al., 2012; Blakemore et al., 2006) and track into adulthood (Bayer et al., 2011; Daniels et al., 2005; Nicklaus et al., 2004; Nicklaus et al., 2005). Moreover, adolescence is a period at high risk of developing excess body weight, when autonomy over food choices increases (Neumark-Sztainer et al., 1999; Whitney and

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Rolfes, 2002). In 2016, 124 million children and adolescents aged 5-19 years worldwide were obese, with an increased risk of chronic disorders such as type 2 diabetes, adverse psychosocial consequences, and lower educational attainment (Abarca-Gómez et al., 2017).

Among the causes of obesity, there is the imbalance between food intake and energy expenditure (Huang and Qi, 2015; Reedy and Krebs-Smith, 2010; Sahoo et al., 2015), incentivized by the exposure to palatable energy-dense food ("unhealthy" food) in the obesogenic food environment (Harris et al., 2009, Morris et al., 2015). Unhealthy food marketing contributes to creating an obesogenic environment, with 65 to 80% of foods marketed to youth considered "unhealthy" based on a high quantity of added sugar, salt, and saturated fat (Boyland et al., 2016; Clark et al., 2020; Dahr et al., 2011; Powell et al., 2011; Sadeghirad et al., 2016; Smith et al., 2019; Sonntag et al.,2015).

In this paper, we conduct an online experiment to assess how emotions affect the impact of food advertisements on adolescents' food choices. Adolescents in the U.S. reportedly spent an average of 4 to 6 hours per day on digital media in 2016 (Twenge et al., 2019), with around 45% reporting that they used the internet "almost constantly" in 2018 (Anderson and Jiang, 2018). As a result, adolescents are exposed to pervasive food and beverage advertising and promotions (Kelly et al., 2015b; WHO, 2019). About 65%–80% of food advertising online is for unhealthy products or brands associated with these foods (Qutteina et al., 2019; Potvin et al., 2019). Kidd et al. (2021) monitor the exposure of 34 adolescents to advertisements on Facebook and find that 98% of the food advertising was for unhealthy food products.

Prior research has provided strong evidence that marketing, including advertising, for unhealthy food contributes to overweight and obesity (Boyland and Tatlow-Golden, 2017; Boyland et al. 2016, WHO, 2016). Unhealthy food items attract more interest and attention than other healthy and non-food ads (Doolan et al., 2014; Murphy et al., 2020; Werthmann et al., 2013). The food advertising hierarchy of effects framework by Kelly et al. (2015) stipulates that brand recognition not only influences brand attitudes but also eating behaviors. Exposure to TV food advertising targeting youth, for example, increases preferences, choices, purchasing behaviors, and laboratory intake for energy-dense foods (Boyland et al., 2016; Dahr et al., 2011; Sadeghirad et al., 2016; Smith et al., 2019; Sonntag et al.,2015). This has led to several regulatory measures to decrease food advertising targeting youth on TV (Galbraith-Emami and Lobstein, 2013). As a result, food companies are increasingly allocating their advertising budgets towards online and social media formats (e.g., YouTube, Instagram) (Cairns et al., 2013; Tatlow-Golden et al., 2016).

During adolescence, cognitive development is underway and cognitive control abilities have not fully matured, and susceptibility to external/social influences is high (Kelly et al., 2015a; Moses and Baldwin, 2005; van Dam and van Reijmersdal, 2019). Since adolescents may lack the ability to defend against the persuasive intent of advertising (Garde et al., 2018; Pechmann et al., 2005; Rozendaal et al., 2011) and are highly sensitive to rewards (Van Leijenhorst et al., 2010), we expect this group to be susceptible to unhealthy food advertising online. Determining the effects of online food advertising on the eating habits of adolescents is an understudied, yet critically important public health question that could be of critical importance in determining their eating behaviors and risk for developing chronic conditions like obesity (Tatlow-Golden et al., 2016; Qutteina et al., 2019; Zenith, 2020).

This study assesses the impact of online food advertising on adolescents' food choices and the mechanisms mediating this relationship. Notably, we are interested in whether positive or negative emotions exacerbate susceptibility to food advertising in adolescents. Emotions influence both eating behavior and sensitivity to advertising and could be an important factor in determining adolescents' susceptibility to the negative effects of food advertising in promoting unhealthy food choices. Negative emotions are associated with overeating and comfort eating, especially in restrained eaters (Evers et al., 2018; Macht, 2008; Stice, 2001;

Stice et al., 2005;), and positive moods with a higher capacity to delay gratification and select healthier food items (Fedorikhin and Patrick, 2010; Garg et al., 2007; Garner et al., 2014). Moreover, emotions and mood can influence the content and the process of cognition, with a positive mood leading to higher susceptibility to advertising (Bagozzi et al., 1999; Bronner et al., 2007; Goldberg and Gorn, 1987; Owolabi, 2009).

This is of particular importance since adolescence is a period of peak difficulties with impulse control, heightened reward sensitivity, and large emotional state fluctuations (e.g., Spear, 2011). Further, emotion regulation, or the ability to modulate the experience and expression of emotions, shows protracted development across adolescence (Gross, 1998; Zeman et al. 2006; Zimmermann & Iwanski, 2014). Thus, adolescents are particularly susceptible to shifts in emotional states and subsequent compensatory unhealthy behaviors (e.g., Somerville et al., 2010), and the link between emotions and compensating food choices may depend on individual differences in emotion regulation. (e.g., Rose et al., 2018).

To study the impact of online advertisement on food choices, and the mediating impact of emotions on susceptibility to food advertisement, we conduct an online experiment with 940 adolescents (13-17 years old). We first identify, in an online study with 240 adolescents, the most effective way (i.e., film clips) to induce positive, neutral, and negative emotions in adolescents. We ask adolescents to watch two randomly assigned two-minute film clips from a collection of twelve film clips (four positives, four negatives, and four neutral). We collect participants' emotions before and after the clip using a standardized test, the Positive and Negative Affect Schedule (PANAS) developed by Thompson (2007). We identify the six film clips inducing the most positive, most negative, and most neutral average change in emotions.

In the second stage, we carry out an online study with 750 adolescents to assess the impact of online food advertising on food choices, and the interaction with positive and negative emotions induced through the film clips identified in the first study. We employ a 3X2 between-subjects design where we randomly assign participants to three alternative emotion conditions (negative, neutral, and positive) and whether they are exposed to either an unhealthy food or a non-food online advertisement. Adolescents are asked to carefully watch two two-minute film clips validated to elicit the targeted emotion (positive, neutral, or negative). Before and after the first film clip, they are randomly assigned to watch three 30-second advertisements either on unhealthy food items (Hershey Kisses, Lay's potato chips, and Oreos) or on non-food items (Nintendo switch, Shoes by 2GO, Spotify). We collect participants' emotions using the PANAS before and after the film clips and advertisements, and their hunger level after the videos. Participants then begin a food decision phase. Twenty food items of similar prices are displayed on the screen in random order, to avoid order effects. We present participants with both healthy and unhealthy options: among the twenty food items, ten will be healthy (five sweet and five salty) and ten will be unhealthy (five sweet and five salty). Participants are asked to select the five items they would like to eat. They are also informed that one of every seven respondents will be randomly drawn to receive their selected food items via mail. The food choice is incentivized to motivate participants to make choices representative of their actual preferences, allowing us to identify the impact of advertising on non-hypothetical food choices. We also ask participants other important information such as age, sex, race, education, household income, household size, perceived healthfulness and taste of the twenty food items offered, diet, restrained eating, internet use habits, and emotion regulation.

2 Experimental design

2.1 Sample and recruitment

We conduct two online survey experiments with respectively 240 and 750 adolescents aged 13-17 from the US. We oversample minority groups given that youth obesity disproportionately affects ethnic minorities, with obesity rates of 14.7% among White youth, 23.6% among Hispanics, and 20.4% among Black youth (Ogden et al., 2016).[2] A recent review by Backholer et al. (2021) shows that youth from ethnic minorities and low social-economic positions have a higher potential exposure or impact to unhealthy food advertising, and research shows that food companies target advertising of unhealthy foods to Hispanic and Black youth (Grier et al., 2008; Grier et al., 2010; Harris et al., 2019).

The recruitment and data collection were conducted with the help of the survey provider Qualtrics. Both studies were approved by the Institutional Review Board at The Pennsylvania State University. In both studies, we obtain parental consent first and ask the parent to pass to survey to the child. The study on Emotion Induction was conducted from January 18 to 21, 2022, and participants spent on average 13 minutes taking the survey (with a minimum of 6 and a maximum of 86 minutes). The study on the impact of Online Advertisements and Emotions was conducted from May 10 , 2022, and participants spent on average 30 minutes taking the survey.[3]

2.2 Emotion induction

In a study with 240 adolescents, we identify the most effective film clips to elicit targeted emotions in an online setting. While the impact of experimental emotion elicitation in adults has been examined in the literature (Gilman et al., 2017; Gross and Levenson 1995; Westerman et al., 1996), there are limited data showing whether similar methods of emotion induction will work in adolescents. Further, the proposed study will provide evidence for the clips to be used in an online format, rather than in a laboratory setting.

We select twelve film clips (four positives, four negatives, and four neutral) from publicly available films, documentaries, or internet videos, both new and from repositories of 2-minute excerpts that have been shown to elicit discrete emotions in prior studies with adults (Gilman et al., 2017; Maffei & Angrilli, 2019). Table A.1.1 in Appendix A.1. reports a list and description of the film clips used in this study. We ask adolescents to watch two randomly assigned two-minute film clips from the collection of twelve film clips and elicit participants' emotions before and after the clip, using the Positive and Negative Affect Schedule (PANAS) developed by Thompson (2007). Table A.1.2 in Appendix A.1. reports the average Positive Affect Scores (PA) and Negative Affect Scores (PA) after the film clips in columns 1 and 3, and the difference in PA and NA with respect to baseline in columns 2 and 4. We pool the affect scores independently of whether the clip was watched as first or second since PA and NA are not significantly different depending on the order of the clip, based on t-tests comparing the mean affect scores if the clip was watched as first or second. We can reject the null hypothesis that PA and NA are equal across videos, based on the results of the ANOVA analysis. We select the two clips with the most PA and least NA for the positive emotion (Mr. Bean – Photo, and D2: The Mighty Ducks - Speech), and the two clips with the least PA and most NA for the negative emotion (Pursuit of Happiness – Homelessness, and My girl -

[2] Our quotas are as follows: White 50%; Black or African American 20%; Hispanic or Latino 25%; Other Race 5%.
[3] The study s preregistered in the AEA RCT registry under the following trial: AEARCTR-0009134

Funeral). For the neutral clips, we also consider the film clips with the least difference to baseline in PA and NA (BBC Planet Earth Desert, and BBC Planet Earth Seasonal Forests).

2.3 Food advertisement and emotions

We conduct an online survey experiment with 750 adolescents to study the impact of online food advertising on food choices, and the interaction with positive and negative emotions induced through the film clips identified in Study 1 "Emotion induction".

Participants in the study are randomly assigned to one of six experimental conditions, resulting from the interaction of two treatments (Table 1). The first treatment varies the emotion elicited, and the second treatment varies whether participants are exposed to unhealthy food advertisements or non-food advertisements. Participants then perform a food choice task in one of these six conditions.

Table 1: Experimental Treatments

	Positive	Neutral	Negative
Unhealthy food advertisement	*+F*	*=F*	*-F*
Non-food advertisement	*+NF*	*=NF*	*-NF*

At the beginning of the study, we ask the parent or the legal guardian their email informing them that one of every seven adolescent participants will be selected to receive a free basket of food delivered at home. After receiving confirmation that the survey has been passed to the child, we ask adolescents whether they are willing to commit to carefully reading and truthfully answering each question, and a few questions are asked about their preference to discourage parental completion of the survey.

First, we collect the baseline emotion using the PANAS developed by Thompson (2007). Participants are then randomly assigned to watch two two-minute film clips eliciting the targeted emotion, and three 30-seconds advertisements, in six combinations depending on the treatment assignment. For example, in *=NF* adolescents watch in sequence one non-food advertisement, one film clip to elicit neutral emotions, two non-food advertisements, and a second film clip to elicit neutral emotions. For the positive emotions, we show participants "Mr. Bean - Photo" and "D2: The Mighty Ducks - Speech" excerpts. For the neutral emotions, we show "BBC Planet Earth Desert" and "BBC Planet Earth Seasonal Forests" excerpts. For the negative emotions, we show "Pursuit of Happiness – Homelessness" and "My girl - Funeral" excerpts. We select six 30-seconds advertisements commonly available on the internet, all with an uplifting/positive mood. For unhealthy food advertisements, we select three advertisements that show prominently the food promoted, two sweet and one savory: Hershey Kisses, Oreos, and Lay's potato chips. For non-food advertisements, we select three advertisements about products that could be relevant for adolescents: Nintendo switch, Shoes by 2GO, and Spotify. After the videos, we ask three attention questions about the setting of the two film clips and what was the advertisements they watched. We then collect again participants' emotions using the PANAS, and their hunger on a scale from 1 to 10.

Participants then begin the food choice phase. We ask participants to select five food items that they would like to eat from a list of 20 items similarly priced (around $3), and they can choose more than one of each

item. We incentivize participants to reveal truthful choices, by informing them that we will select one out of every seven participants to be mailed the five food items chosen in the survey. We show participants pictures of ten healthy and ten unhealthy food items in randomized order, among which five are savory and five are sweet. We select food items with longer shelf life and a similar value, and we do not use the same brand in the advertisements. Table A.1.3 in Appendix A.2 shows a list of the 20 food items, with their cost and cost per serving.

After the food choice, we ask participants about the perceived healthfulness and tastiness of the 20 food items used in the food choice, on a scale from 1 to 10. This allows us to confirm whether emotions and food advertisements impact on likelihood to select perceived unhealthy and tastier food items. We also measure individual differences in emotion regulation strategies using the ten questions in The Emotion Regulation Questionnaire (ERQ-CA) developed by Gullone and Taffe (2012). The questionnaire asks about emotions management methods on a Likert scale ranging from 1 to 5 and allows us to analyze whether emotion regulation mediates the impact of emotions on food choices and on susceptibility to advertisements. To analyze whether emotions and online food advertising have a different impact on food choices depending on eating behavior, we use the five questions about restrained eating from the Three-Factor Eating Questionnaire (TFEQ) (Stunkard and Messick, 1985). We then ask thirteen questions about the food eaten and drank during the last seven days, adapted from the 2019 Youth Risk Behavior Survey to measure the consumption of items of relevance for this study (sweet and savory snacks, fast-food consumption). Finally, we collect several demographic characteristics, including height and weight, and information about their internet use.

3 Empirical Analysis

3.1 Empirical Strategy

We test the effectiveness of the film clips to induce the desired emotions by comparing the reported emotional state in the sad, neutral and positive emotion treatments with parametric tests (t-test and ANOVA).

To test the impact of emotions and advertisements on food choices, we estimate linear models of the outcomes: (i) number of unhealthy items selected (number of unhealthy items out of five); and (ii) total calories (in kcal), sodium (in grams), saturated fat (in grams) and added sugar content (in grams) of the selected food items as secondary outcomes. We use the following linear regression model to analyze the impact of emotions on the susceptibility of advertisements

$$Y_i = \gamma_0 + \gamma_1 A_i + \gamma_2 N_i + \gamma_3 A_i N_i + \gamma_4 P_i + \gamma_5 A_i P_i + \varepsilon_i \quad (1)$$

where Yi are the dependent variables as specified above. As independent variables we use: a dummy variable taking the value of 1 if the advertisement watched is a food advertisement (A_i) to capture the impact of watching the unhealthy food advertisement on food choices; a dummy variable taking the value of 1 if the film clip watched is intended to induce positive mood (P_i) to capture the impact of positive mood on food choices; a dummy variable taking the value of 1 if the film clip watched is intended to induce negative mood (N_i) to capture the impact of negative mood on food choices (base group neutral mood); interactions

between the "food advertisement dummy" (A_i) and the "emotions dummies" (P_i and N_i) to capture any interaction between the food advertisement and positive or negative emotions.

Given randomization to the treatments, we expect to achieve balance in observable covariates across the treatments. Nevertheless, we can estimate the equation above without and with other control variables such as demographic factors. We also study the impact of the treatments on specific populations, by conducting heterogeneous effect analysis. We investigate whether the food advertisements have a larger impact on ethnic minorities by including dummy variables for being Black and Hispanic, and interactions between the variables indicating ethnic minorities and food advertisements and emotions.

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3.2 Hypotheses

Based on prior literature reporting the effect of food advertising on food choices, we expect that unhealthy food advertising online will also impact the food choices of the adolescents in our study (Boyland et al., 2016; Dahr et al., 2011; Sadeghirad et al., 2016; Smith et al., 2019; Sonntag et al.,2015).

Hypothesis 1. Online unhealthy food advertising increases the number of unhealthy food choices.

Moreover, emotions have been found to impact food choices. In line with the literature, we expect adolescents in the negative affect condition to have unhealthier food choices (Evers et al., 2018; Macht, 2008; Stice, 2001; Stice et al., 2005). Adolescents difficulties to regulate emotions and control impulses might increase the extent to which they compensate with food (Rose et al., 2018; Somerville et al., 2010; Spear, 2011).

We also draw from theoretical perspectives regarding the impact of emotional states on behavior. The hedonic contingency hypothesis (Wegener and Petty, 1994) posits that individuals tend to engage in behaviors that induce or increase pleasurable states. Similarly, according to the process model of emotion regulation (e.g., Gross, 2015), one way that individuals manage emotions is via response modulation or changing their behavior following emotion onset. In line with this perspective, food choices in emotional situations may reflect attempts to distract oneself from negative emotions, enhance positive emotions, or mask emotions altogether (e.g., Evers et al., 2010). Emotional eating has been associated with both poor emotion regulation and high body fat in adolescents (e.g., Shriver et al., 2019), suggesting that individual differences in emotion regulation may contribute to the extent to which emotional states influence unhealthy food choices.

Hypoth*esis 2.* Emotions will influence food choices such that a greater number of unhealthy food choices will be made by adolescents if they have a negative induced affective state (particularly if they are restrained eaters).

Folkvord et al. (2016) proposed a model in the food science literature to explain the impact of food advertising, the Reactivity to Embedded Food Cues in Advertising Model (REFCAM). In this model, the advertisement is a food cue that induces reactivity to food, which in turn induces an increase in food intake that reinforces the reactivity to the food cue through a process akin to Pavlovian conditioning. Exposure to the advertisement induces a physiological and psychological response that, over time, pairs with post ingestive positive sensations from the associated food. This, in turn, increases the salience of the food advertisement itself. The strength of this relationship is influenced by differences in the environment and in individual susceptibility factors. In this model, individual dispositional factors are crucial in determining susceptibility to the food cues in advertising. Not all individuals process and react to food cues in advertising alike, depending on long-term (e.g., impulsivity) and temporary (e.g., emotions) individual differences. We

propose that emotions and attention be individual dispositional factors that can intervene in determining susceptibility to food cues in advertisements, ultimately increasing unhealthy food choices. Griskevicius et al. (2010) for example find that positive affective state increases heuristic decision making and susceptibility to advertising.

Hypothesis 3. Emotions will moderate the impact of online food advertising on food choice such that a greater number of unhealthy food choices will be made by adolescents if they have a positive induced affective state, since positive affective state increases susceptibility to advertising.

4 Conclusion

In this study, we examine the individual and combined effect of emotions and online food advertisements on adolescents' food choices. We conducted two online experiments with 940 adolescents (aged 13-17 years old). In the first study with 240 adolescents, we identified six two-minute film excerpts that better elicited positive, neutral, and negative emotions in an online setting from a collection of twelve film clips. In the second study, 750 adolescents completed a food decision task selecting five out of 20 healthy and unhealthy snacks (of which five savory and five sweet). To increase the representativeness of the food choices in the study, one out of seven participants received their chosen food snacks delivered to their homes. We experimentally varied the environment in which the food decision task was performed between participants, by assigning participants to watch different videos (film clips and advertisements) for around six minutes. We varied the emotional state by assigning adolescents to watch two two-minute film clips validated to elicit either positive, neutral, or negative emotions. With a second experimental treatment, we varied whether adolescents watched three 30-second advertisements about unhealthy food or non-food products. We measured participants' emotions prior and after the videos with the PANAS (Thompson, 2007) to assess the effectiveness of our emotion inducement procedure. We use the number of unhealthy snacks selected and the nutritional content of the food selected to determine the impact of emotions and online food advertising on food choices.

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Appendices

A. Additional results

A.1 Emotion Inducement

Table A.1.1: List of film clips

Emotion	Clip	Description	Length (min)	Source
	Positive			
Positive 1	Key and Peele - Spoilers	Friends try to avoid spoilers	2:14	New
Positive 2	The Office - Fire Drill	Coworker causes chaos	2:03	Gilman et al 2017
Positive 3	Mr. Bean – Photo	Man asked to take a photo runs with the camera	2:10	New
Positive 4	D2: The Mighty Ducks - Speech	Coach gives inspirational speech to the youth hockey team	2:21	Gilman et al 2017
	Neutral			
Neutral 1	People walking in a city	First-person view of walking in the street in London	1:58	New
Neutral 2	BBC Planet Earth Mountains	Scenery of mountains with modified wind sounds	2:00	Maffei Angrilli 2019
Neutral 3	BBC Planet Earth Desert	Scenery of desert	2:11	Maffei Angrilli 2019
Neutral 4	BBC Planet Earth Seasonal Forests	Scenery of forests	2:03	Maffei Angrilli 2019
	Negative			
Negative 1	My girl - Funeral	Funeral of a child, grief of friend	2:05	Maffei Angrilli 2019
Negative 2	Pursuit of Happiness - Homelessness	Homeless father and son spend a night in a subway restroom	2:05	Maffei Angrilli 2019
Negative 3	Lost - Drowning	Death by drowning of a couple	2:07	Maffei Angrilli 2019
Negative 4	Vacancy - Run	Two people run from a threat	2:00	Maffei Angrilli 2019

Table A.1.2: Film clips Positive and Negative Affect scores

		Positive affect score		Negative affect score		
		(1) Average	(2) Difference to baseline	(3) Average	(4) Difference to baseline	(5) N
Positive 1	Key and Peele - Spoilers	14.68	-1.78	7.00	-0.73	37
Positive 2	The Office - Fire Drill	15.80	-0.93	8.75	0.80	44
Positive 3	**Mr. Bean – Photo**	17.84	0.30	6.62	-1.22	37
Positive 4	**D2: The Mighty Ducks- Speech**	18.63	1.70	6.37	-1.84	43
Neutral 1	People walking in a city	15.55	-2.42	7.08	-0.58	38
Neutral 2	BBC Planet Earth Mountains	15.86	-1.347	6.78	-1.46	35
Neutral 3	**BBC Planet Earth Desert**	14.866	-1.23	7.44	-1.02	43

Neutral 4	**BBC Planet Earth Seasonal Forests**	16.40	-1.00	6.98	-0.98	40
Negative 1	**My girl – Funeral**	10.30	-6.22	10.78	3.50	46
Negative 2	**Pursuit of Happiness - Homeless**	9.92	-6.50	12.31	3.83	36
Negative 3	Lost – Drowning	9.80	-6.06	10.71	2.78	35
Negative 4	Vacancy – Run	11.79	-5.61	9.71	3.08	38

N is the number of subjects watching the film clip.

A.2 Additional results

Table A.2.1: List of foods

Category	Food	Cost	Servings in Package	Cost per serving
Unhealthy and savory	Utz cheese curls	$2.68	9	$0.30
Unhealthy and savory	Doritos nacho cheese chips	$1.98	3	$0.66
Unhealthy and savory	Pringles chips	$1.78	5	$0.36
Unhealthy and savory	Cheez-It crackers	$3.14	12	$0.26
Unhealthy and savory	Funyuns onion flavored rings	$1.98	3	$0.66
Unhealthy and sweet	Fruit by the foot snack	$2.48	6	$0.41
Unhealthy and sweet	Kit Kat wafer bar	$1.96	4	$0.49
Unhealthy and sweet	Milano chocolate cookies	$3.28	5	$0.66
Unhealthy and sweet	Little Debbie strawberry shortcake rolls	$2.58	6	$0.43
Unhealthy and sweet	Skittles candy	$1.64	4	$0.41
Healthy and savory	Blue diamond almonds	$3.22	6	$0.54
Healthy and savory	Harvest Snap green pea snacks	$2.98	6	$0.50
Healthy and savory	Hippeas chickpea puffs	$2.98	4	$0.75
Healthy and savory	Triscuit crackers	$2.98	9	$0.33
Healthy and savory	Great Value walnuts	$2.36	4	$0.59
Healthy and sweet	Del Monte mandarin oranges fruit cup	$2.18	4	$0.55
Healthy and sweet	Bear Naked fruit and granola	$3.38	6	$0.56
Healthy and sweet	Great Value dried apricots	$2.87	4.5	$0.64
Healthy and sweet	Kind grain bar chocolate	$2.78	5	$0.56
Healthy and sweet	Del Monte diced peaches fruit cup	$2.18	4	$0.55

Understanding the Impact of Online Food Advertisements and Emotions on Adolescents' Food Choices

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