An Exploration of American Adolescents' Beverage Intake and Views on Celebrity Endorsement of Beverage Products to Inform Policies that Promote Healthy Beverage Guidelines

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Abstract

Food and beverage marketing influences the preferences and diet quality of adolescents. In 2009, about one third (23.8 million US dollars) of the 77 million US dollars spent on celebrity marketing targeted to American adolescents promoted sugar-sweetened beverages (SSB) associated with obesity and type 2 diabetes. Research is limited on how celebrity endorsement influences adolescents' SSB choices and intake. This M.S. thesis describes a study with three research objectives conducted among 28 adolescents in Virginia to explore their beverage intake and views about celebrity endorsement of beverage products. Participants completed four activities including: BEVQ-15 to determine the type and amount of beverages consumed; a familiarity survey with 48 celebrities and their endorsements for six beverage product categories; Q methodology study that used 48 celebrity images depicting beverage brand and product endorsements where participants sorted the images on a normal distribution (+4 to -4) based on perceived celebrity credibility (i.e., expertise, attractiveness and trust); and a post Q sort questionnaire. The BEVQ-15 revealed that 96.3% of participants did not adhere to healthy beverage guidelines. A majority of participants recognized between 51% and 75% of the celebrities, but only 4.9% accurately identified celebrities and their associated beverage endorsement category. The Q methodology study used factor analysis to identify three unique viewpoints: (1) entertainment image emulators; (2) inspirational celebrities for perceived healthier beverages; and (3) multi-cultural celebrity appreciators. Study results may inform future policies and actions to ensure that celebrity endorsement encourages adolescents to buy and consume healthy beverages that align with guidelines.

Abstract (General Audience)

Food and beverage marketing influences the preferences and diet quality of adolescents. In 2009, about one third (23.8 million US dollars) of the 77 million US dollars spent on celebrity marketing targeted to American adolescents promoted sugar-sweetened beverages (SSB) associated with obesity and type 2 diabetes. Research is limited on how celebrity endorsement influences adolescents' SSB choices and intake. This M.S. thesis describes a study with three research objectives conducted among 28 adolescents in Virginia to explore their beverage intake and views about celebrity endorsement of beverage products. Participants completed four activities including: BEVQ-15 to determine the type and amount of beverages consumed; a familiarity survey with 48 celebrities and their endorsements for six beverage product categories; Q methodology study that used 48 celebrity images depicting beverage brand and product endorsements where participants sorted the images on a normal distribution (+4 to -4) based on perceived celebrity credibility (i.e., expertise, attractiveness and trust); and a post Q sort questionnaire. The BEVQ-15 revealed that 96.3% of participants did not adhere to healthy beverage guidelines. A majority of participants recognized between 51% and 75% of the celebrities, but only 4.9% accurately identified celebrities and their associated beverage endorsement category. The Q methodology study used factor analysis to identify three unique viewpoints: (1) entertainment image emulators; (2) inspirational celebrities for perceived healthier beverages; and (3) multi-cultural celebrity appreciators. Study results may inform future policies and actions to ensure that celebrity endorsement encourages adolescents to buy and consume healthy beverages that align with guidelines.

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Acronyms and Abbreviations

AAP	American Academy of Pediatrics
ABA	American Beverage Association
ACS	American Cancer Society
AHA	American Heart Association
ANOVA	Analysis of Variance
BEVQ	Beverage Questionnaire
BMI	Body Mass Index
CFBAI	Children's Food and Beverage Advertising Initiative
CSPI	Center for Science in the Public Interest
DGA	Dietary Guidelines for Americans
EDNP	Energy-dense and nutrient-poor
FTC	Federal Trade Commission
GIF	Graphics Interchange Format
HBI	Healthy Beverage Index
HER	Healthy Eating Research
IWG	Interagency Working Group
KCALS	Kilocalories
NHANES	National Health and Nutrition Examination Survey
RWJF	Robert Wood Johnson Foundation
SSB	Sugar-sweetened beverages
TCCC	The Coca-Cola Company
UK	United Kingdom
US	United States
WHO	World Health Organization

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Chapter 1 Introduction

I. Background and rationale for the research

A *celebrity* is a public figure such as an entertainer, actor, musician, athlete, or other well-recognized person in a culture or society.[1,2] A *celebrity endorsement* is a promotional message made by a public figure who appears in an advertisement or other marketing communications that use his/her name or other personal characteristics to influence the sales or use of a brand.[3,4] Beverage companies use *celebrity marketing,* defined as the fees paid to a celebrity and the cost of marketing, to promote a specific brand or food and beverage product.[5] In the United States (US), celebrities often endorse energy-dense and nutrient-poor (EDNP) food and beverage products to Americans.[6–10]

The 2015-2016 National Health and Nutrition Examination Survey (NHANES) data show that obesity prevalence was higher in American adolescents ages 12-17 years (20.6 percent) than children ages 6-11 years (18.4 percent) and 2-5 years (13.9 percent).[11] Targeted food and beverage marketing is an important factor attributing to the increase in overweight and obese youth, which increases their risk of developing diet-related chronic conditions such as type 2 diabetes and cardiovascular diseases.[3,5] Adolescents are more likely to consume sugar-sweetened beverages (SSB) than any other age group.[12] SSB are defined as any beverage that contains caloric sweeteners such as sucrose, high fructose corn syrup, or fruit juice concentrates including: carbonated soda, sweetened fruit juices, energy and sports drinks, and sweetened coffee and tea.[13] SSB consumption is associated with weight gain, overweight and obesity, and

diet-related chronic diseases including dental caries, type 2 diabetes, and cardiovascular disease.[14]

The food, beverage, and restaurant industry has made some progress to engage in responsible food marketing to children through the industry self-regulatory program called the Children's Food and Beverage Advertising Initiative (CFBAI), convened by the Council of Better Business Bureaus in 2006.[5,15] By 2018, eighteen companies, including three major beverage companies (i.e. PepsiCo, The Coca-Cola Company [TCCC], and Dr. Pepper Snapple Group) voluntarily pledged to participate in the CFBAI and restrict the marketing of food and beverage products that do not meet the 2014 universal nutrition criteria. However, these restrictions only apply to advertising and media platforms that target children younger than 12 years and the only beverages included in the nutrition criteria are for milk and juice.[5,15] Therefore, adolescents (ages 12-18 years) are not protected from the marketing of EDNP food and beverage products that has been shown to influence their purchasing and consumption behaviors, diet quality, and health outcomes.[16]

II. Research goals and questions

A body of evidence shows that food, beverage, and restaurant companies target adolescents to encourage them to buy and consume a substantial amount of EDNP food and beverage products.[5,7,17] Studies have found that adolescents, ages 14-17 years, are more likely to be targeted by these advertisements and consume SSB than younger children under the age of 12 years.[17] Disparities exist between racially and ethnically diverse youth with more advertising exposure among black and Hispanics than white youth.[7,17,18] The US Federal Trade

Commission's (FTC) 2012 report on food and beverage marketing to American children and adolescents documented that 48 companies spent 105 million US dollars on celebrity marketing, of which 77 million US dollars was spent to market primarily EDNP food and beverage products to adolescents, ages 12-17 years carbonated sugary beverages were the leading category of expenditures, with 23.8 million dollars.[5] However, the FTC report did not identify specific celebrities who were involved in marketing to adolescents.[5] Moreover, there is a lack of descriptive and experimental research in the US to understand whether and how celebrity endorsement influences the views of adolescents, how celebrity credibility is related to adolescents' beverage product category choices (e.g., SSB versus water), and their typical beverage consumption behaviors in comparison to government and expert recommendations and guidelines.

This MS thesis conducted exploratory research that can be used to inform policies and actions to promote healthy beverage guidelines to adolescents. The terms, adolescents and teens, will be used interchangeably throughout this document. This study had three research objectives that involved the participation of adolescents, ages 14-18 years (n=28) living in either northern or southwest Virginia between February 2, 2018 and February 22, 2018.

The specific research questions (RQ) for each study objective are summarized below.

RQ 1: *How do current beverage consumption patterns of a sample of teens, ages 14-18 years, in Virginia compare with the Healthy Eating Research's (HER) healthy beverage guidelines and other beverage recommendations?*

RQ 2: *How accurately can teens recognize celebrities and the beverage product categories these celebrities endorse?*

RQ 3: *What are teens' views about celebrity credibility and endorsement of beverage brands and products?*

For study objective one, I recruited 28 adolescents, ages 14-18 years, to complete a 15-item beverage questionnaire to document their reported usual beverage intake and compare their responses to the HER 2013 healthy beverage guidelines and other expert recommendations. For study objective two, I explored adolescents' familiarity with celebrities associated with endorsing one or more of the six different beverage product categories including SSB, low- or mid-calorie beverages, no calorie beverages, milk, water, and alcohol. For study objective three, I explored the adolescents' views about celebrity credibility (which includes expertise, attractiveness, and trust) related to the 48 celebrities' endorsement of different beverage products and brands.

III. Contribution of this research to knowledge, theory and policy

This research builds on the descriptive and empirical published literature by exploring how teens, ages 14-18 years, in northern and southwest Virginia view celebrity credibility for beverage marketing related to their reported usual beverage consumption behaviors. This research empirically tested Ohanian's Source Credibility Model (1990)[19] to understand which components of credibility (i.e., trust, expertise or attractiveness) were most meaningful to teens in relation to celebrity endorsement of beverage products. It is anticipated that the results from this research may be used to encourage responsible beverage marketing policies and practices of beverage

companies that participate in the CFBAI to extend their voluntary industry pledges to restrict the marketing of unhealthy nutrient-profile beverages to teens ages 12-18 years old. The research may be also used to encourage beverage industry stakeholders to partner with celebrities to endorse beverages that meet government and public health experts' healthy beverage guidelines in order to support a healthy diet consistent with the Dietary Guidelines for Americans (DGA) 2015-2020. Finally, the findings may help to reduce SSB consumption among teens by enabling consumer advocacy groups to effectively promote healthy beverage awareness messages and inform media advocacy campaigns.

IV. Timeline for implementing the research

The Virginia Tech Institutional Review Board approved the research protocol for the study on December 13, 2017. Study recruitment began on February 2, 2018 and the data collection was completed by February 22, 2018. The data were analyzed, interpreted, summarized by April 17, 2018. This MS thesis defense will be presented on May 1, 2018 at 9:30am at Wallace Hall.

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Chapter 2 Literature Review

This literature review summarizes research that addresses the following topics: (1) authoritative and expert groups' beverage guidelines and recommendations; (2) tools measure beverage intake; (3) expert recommendations and trends in marketing beverages to adolescents; (4) social media engagement among adolescents; (5) alcoholic beverage recommendations for responsible marketing in the US; (6) beverage consumption trends for adolescents; (7) descriptive and experimental research of celebrity endorsement; (8) models and frameworks to address the influence of celebrity endorsement; (9) public health concerns about celebrities partnering with companies; (10) current policies and actions to limit SSB consumption; (11) beverage industry initiatives to decrease SSB marketing and consumption; and (12) conclusions used to inform the research questions presented in chapter 1

1. Authoritative and Expert Groups' Beverage Guidelines and Recommendations

Several US organizations, expert bodies and research groups have developed guidelines, recommendations and standards for beverage intake and added sugars for populations. These entities described below include the Robert Wood Johnson Foundation's (RWJF) Healthy Eating Research (HER), the United States Department of Agriculture (USDA), DGA, the Beverage Guidance Panel, American Heart Association (AHA), American Academy of Pediatrics (AAP), and American Cancer Society (ACS).

HER Healthy Beverage Guidelines

In 2013, an expert 17-member committee convened by the RWJF's HER released healthy beverage guidelines for Americans tailored to five different age categories including:

preschoolers (ages 2-4 years), younger children (ages 5-10 years), older children (ages 11-13 years), adolescents (ages 14-18 years), and adults (ages 19 and older). [1] The recommendations for adolescents include: water, unflavored nonfat or low-fat milk, 100 percent juice, mid-calorie beverages up to 40 calories per 12-ounce serving. These recommendations do not include caffeinated or fortified beverages such as diet or non-caloric drinks and vitamin-enhanced beverages (Figure 2.1).[1]

Figure 2.1   HER Healthy Beverage Guidelines for Adolescents

Adolescents (Ages 14 to 18)
- **Water**—Including carbonated water, with no added caloric sweeteners • Require access to free, safe drinking water wherever beverages are served and/or sold
- **Milk**—Unflavored, low-fat and nonfat milk, and soy beverages (calcium and vitamin D fortified) in no more than 12-ounce portions*
- **Juice**—0- to 8-ounce portions of 100% fruit or vegetable juice or fruit juice combined with water, no added caloric sweeteners, and no more than 140 mg of sodium per portion
- **Other beverages**—Non-caffeinated, non-fortified beverages with no more than 40 calories per container

Smart Snacks in School Standards

The USDA developed the Smart Snacks in School Standards that were implemented during the 2014-2015 school year. [2] These standards are more lenient for beverage consumption than the HER guidelines. Acceptable beverages include water, no-calorie flavored water in 20 ounce or less portions, flavored or carbonated beverages that have less than or equal to 10 calories per 12 ounces, and beverages less than or equal to 60 calories per 12 ounces (where consumption of only one serving is permitted). These standards differ from the HER healthy beverage guidelines because they allow caffeinated and fortified beverages.[1]

Dietary Guidelines for Americans

The DGA are a set of recommendations released by the Department of Health and Human Services (HHS) and USDA every five years that guide the food and beverage choices of healthy individuals and those who may be at risk for developing chronic diseases.[3,4] The DGA emphasizes healthy eating patterns over time to impact health rather than a single food, nutrient or meal. The 2010 DGA recommended that Americans limit added sugars, whereas the 2015-2020 DGA further recommended that Americans decrease their consumption of added sugars to no more than 10 percent of their daily caloric intake.[3,4] The recommendations translate to 50 grams of added sugars/day (12 teaspoons) for adults and 25 grams of added sugars/day (6 teaspoons) for children and adolescents. The DGA recommend an overall decrease in SSB intake because these beverages contribute a large portion of added sugars and discretionary calories to the average American diet.[4]

Other Authoritative Bodies and Expert Panels Recommendations

The DGA 2015-2020 recommendation to limit added sugars was suggested by Popkin et al. (2006) through the Beverage Guidance Panel.[5] In 2015, the AAP recommended that children should limit their SSB consumption to eight fluid ounces a day.[6] The AHA supported the DGA recommendations in 2016, and Vos et al. (2016) concluded that children ages 2 to 18 years should consume no more than eight fluid ounces of SSB per week.[7,8] Though the ACS does not have numerical recommendations regarding added sugars and beverage intake, the ACS recommends that Americans limit high-calorie beverage intake and replace SSB consumption

with low- or no-calorie beverages.[9] Table 2.1 summarizes the authoritative and expert guidelines

and recommendations discussed in this section.

Table 2.1   Authoritative and Expert Groups' Beverage Guidelines and Recommendations

Expert Body or Organization	Date	Recommendations
The Beverage Guidance Panel (Popkin et al.)	2006	No more than 10 percent of total calories from beverage intake Half of fluid intake should be from water No SSB intake is optimal but recommends no more than 8 ounces of SSBs a day
DGA 2010	2010	Decrease added sugars
RWJF's HER	2013	Adolescents 14-18 years should only consume water, unflavored nonfat or low-fat milk, 100 percent juice with no more than 140mg of sodium per serving, and non-caffeinated or non-fortified beverages with no more than 40 calories per 12 ounces
USDA's Smart Snacks in School Standards	2014	Schools can sell: water, unflavored low-fat milk, unflavored or flavored fat-free milk (including milk alternatives), 100 percent fruit or vegetable juice/or diluted with water and no added caloric sweeteners Other options include: No-calorie flavored water per 20 ounces or less Flavored and/or carbonated beverages with less than or equal to 10 calories per 20 ounces Flavored or carbonated beverage with less than or equal to 60 calories per 12 ounces
HHS and USDA's DGA 2015-2020	2015	Decrease added sugars, specifically from SSBs Added sugars should account for no more than 10 percent of daily total caloric intake Primary beverage choices for children and teens should contain zero calories or provide nutrition benefit (nonfat or low-fat milk and 100 percent juice)
AAP	2015	No more than 8 ounces of SSBs a day
HBI	2015	No more than 10 percent of total calories should be from beverage intake
AHA	2016	Children and teens should consume no more than 8-ounces of SSBs per week Consume no more than 25 g of added sugar or 6 tsp/day
ACS	2017	Limit drinks high in calories and replace with lower calorie beverages Limit SSBs

2. Tools to Assess Beverage Intake

Hedrick et al. (2012) developed a questionnaire to determine beverage consumption patterns of adults to help identify their usual beverage intake.[10] The questionnaire originally contained 19 components but was reduced to 15 components that include water, 100% fruit juice, sweetened juice beverage/drink, whole milk and reduced fat milk, low-fat or nonfat milk (including soy milk and nut milk), regular soft drinks, diet soft drinks/artificially sweetened drinks, sweetened tea, tea or coffee with cream and/or sugar, tea or coffee (black without artificial sweetener), alcoholic beverages (i.e., beer/ales/wine coolers/non-alcoholic or light beer, hard liquor, or wine); and energy and sports drinks.

The Beverage Questionnaire-15 (BEVQ) assess participants on how often each component is consumed with options in varying time frames (i.e., one time a week or 2-3 times per day), as well as quantities (fluid ounces or cup equivalents) that each component is consumed on each occasion. The BEVQ-15 is designed to be easy to complete within a few minutes.[10] The BEVQ-15 is reliable to identify changes in a person's usual beverage intake overtime, and has been validated in children and adolescent populations (ages 6-11 and 12-18 years) compared to multiple 24-hour diet recalls.[11,12]

In 2015, Davy and Duffey developed the Healthy Beverage Index (HBI), based on the DGA 2015-2020 recommendations for Americans to consume less than 10 percent of added sugars from beverages that contribute to their daily caloric intake.[13] The HBI is a scoring system composed of 10 components, eight of which are related to specific beverage categories and the remaining components are related to total fluid needs and percent of calories from beverages.

The HBI is designed to assess beverage intake quality based on current recommendations, as well as identify any associations with cardiometabolic risks in adults. However, the HBI has only been validated in adult populations ages 19 years and older and not in children and teens under 18 years.[13]

3. Expert Recommendations and Trends in Marketing Beverages to Adolescents

World Health Organization Marketing Recommendations

In 2010 and 2012, the World Health Organization (WHO) released food and beverage recommendations regarding marketing to children and teens.[14,15] The WHO describes marketing to be a mix of exposure and power aimed to influence food and beverage preferences, purchase requests, and consumption patterns. The report stated that there is no universal age category to define "children"; however, most countries consider children to include those under the age of 18 years, which aligns with the United Nations definition.[15,16] As mentioned earlier, several leading beverage companies (including PepsiCo and TCCC) participate in the CFBAI, which has pledges that cover children younger than 12 years. However, the WHO report states that companies' responsible marketing guidelines should also apply to adolescents, ages 12-18 years, who are targeted by beverage companies through integrated marketing communications. Thus, it is best to extend the protection to a wider audience to prevent the exposure to these advertisements among all youth, ages 0-18 years, across all marketing, media channels and communication platforms.[15]

Federal Trade Commission Marketing Report and Recommendations

The FTC is a regulatory agency that works to eliminate and prevent deceptive and unfair practices in marketing geared toward children and adolescents. The agency released a report in

2008 that examined the marketing practices directed toward children and adolescents by 44 companies in 2006.[17] The report found that 1.8 billion US dollars was spent on marketing to adolescents in comparison to the 870 million US dollars spent on marketing to children. The companies spent 26.8 million US dollars on celebrity marketing of food and beverage products to children and adolescents. A majority of these expenditures, 25.8 million US dollars, was used for celebrity marketing to teens ages 12-17 years. These findings depict the disproportionate marketing of foods and beverages between children and adolescents.

In a follow up 2012 report, the FTC found that 48 companies spent 105 million US dollars on celebrity marketing of food and beverage products in 2009. Of this amount, 77 million US dollars was used to target teens and SSB were the leading category of all food or beverage products marketed to teens that accounted for 23.8 million US dollars.[18] The FTC called for a general improvement in the nutrient-profile of products marketed to children and adolescents. The report noted that many companies have made steps in the right direction but more work needs to be done. For example, many companies began developing "better for you products", that had small changes to the product's nutrient content or reduced portion sizes. However, the authors stress that "better for you" does not necessarily mean good for you.[18] Both reports found that the marketing of EDNP food and beverage products is a contributing factor to rising rates of obesity among US children and adolescents.[17–19] Leibovitz et al. (2012)[18] urged the government to increase FTC funding in order to allow more frequent and updated reports of current marketing practices in order to support these recommendations and findings.

Sugary Drink FACTS Marketing Report and Recommendations

Harris et al. released the first Rudd Center Sugary Drink FACTS report in 2011 that analyzed the type of beverage categories marketed to children and adolescents, the nutrition content of these beverages, sales data of the beverages, and the various forms of marketing used to advertise the beverages.[20] This report found that most SSB companies choose to advertise the healthy components of their beverages; that many people are misinformed and believe fruit, energy and sports drinks are healthy for them; and that SSB are heavily marketed to children and adolescents.[20]

In 2014, the Rudd Center for Food Policy and Obesity released a follow up Sugary Drink FACTS report and found that beverage companies spent a total of 866 million US dollars on SSB advertisements and 465 million US dollars for other beverages including diet drinks, 100 percent juice and water.[21] Of all beverage advertisement expenditures, 31 percent was spent on soda, 18 percent on energy drinks, and 35 percent on other SSB (i.e., juice drinks, sweetened coffee/tea, etc.). In comparison, only 10 percent of advertising spending was used to promote 100 percent juice and only four percent to promote plain bottled water.[21]

The 2014 Rudd Center report documented that three major beverage companies including, PepsiCo, TCCC, and Dr. Pepper Snapple Group, accounted for 70 percent of unhealthy nutrient-profile beverage advertisements. In comparison to adults, teens are exposed to 70 percent less advertisements for low- and no-calorie beverages, such as diet drinks, water and 100 percent juice.[21] Energy drink advertisements were the most common type of SSB viewed by teenagers

(34 percent), followed by soda advertisements (30 percent) and sports drink advertisements (12 percent).[19]

This report also identified a difference in advertisement exposure between ethnic groups.[18] Seven beverage companies increased their advertising spending on Spanish language television to a total of 83 million US dollars between 2010 and 2013, an increase of 44 percent, compared to the 9 million US dollars spent in advertising on diet drinks, water, and 100 percent juice. Dr. Pepper Snapple Group and Sunny D were found to have spent a third of their advertising budget on Spanish language television. During this time period, the TCCC decreased its advertising targeted to the Hispanic population. The report also identified weaknesses in the CFBAI, finding that Hispanic children had more exposure to SSB advertising than Hispanic teens in 2013.[19]

Compared to white children and teens, black youth had double the exposure to SSB advertisements.[21] Black teens saw four times the number of Sprite advertisements and three times the number of full-calorie Coca-Cola advertisements. This disproportionate trend was also seen in advertisements for various brands including Vitamin Water, 5-Hour Energy, and Red Bull. PepsiCo, TCCC, and Dr. Pepper Snapple Group have stated that they intend to appeal to multicultural youth by using ethnically diverse celebrity endorsements such as Beyonce, Nicki Minaj, and Pitbull to endorse their products.[21]

The 2014 Sugary Drink FACTS report recommended that the CFBAI increase the age of protection to children ages 14 years.[21] The disproportion in racial and ethnically targeted advertising must also be addressed in order to lessen the disparities among these groups. Due to

the fact that unhealthy nutrient-profile drinks are marketed more so than healthy nutrient-profile drinks, the report recommends shifting advertisements to healthier nutrient-profile beverages.[21]

Several reports discussed issued by the FTC, Rudd Center, and the WHO acknowledged that advertising dollars spent on traditional media (i.e. television, print, and radio) has decreased in recent years, yet spending on advertising in non-traditional or new media has risen. [18,21] These include social media platforms such as Facebook, Instagram, Twitter and YouTube, which account for 31 percent of SSB advertising.[21] Social media allows for engagement, an element that is not possible in traditional media forms. Companies foster brand engagement with adolescents via retweets, regrams, "likes" and contests across social media platforms.[21] The reports state that many beverage brands utilize celebrities for advertisements,[15,18,21] which include but are not limited to Pepsi, Sprite, Gatorade, Lipton, and Red Bull.[21] Lapierre et al. (2017)[22] also recognized the emergence of new media that has transformed the marketing landscape through engagement. These authors stress the importance of future research to understand how marketing affects the perspectives of the consumer. This information could then be used to positively frame marketing messages and to promote healthy behaviors among those exposed to advertising.

4. Social Media Engagement Among Adolescents

Younger generations, which include teens ages 14-18 years, desire instant connection and this is granted through their wide use of social media to express themselves and receive validation from their peers.[23] Beverage brands understand this and target younger audiences by using paid influencers, such as celebrities, to more effectively advertise their brand and products. According

to data from PEW Research, 56 percent of teens ages 13-17 years, go online multiple times a day.[24] And 24 percent of teens go online "almost constantly". The ability to go online so frequently is possible due to smartphone usage in this age group. Almost 75 percent of teens own or have access to smart phones that allow for access to social media. A major factor that distinguishes social media from more traditional media is the engagement factor. Brands are able to interact with users on social media by commenting and or liking pictures and posts or user generated content, which contribute to the users sense of validation, a motivating factor of social media usage.[23]

5. Alcoholic Beverage Recommendations for Responsible Marketing in the US

The Distilled Spirits Council in the United States (DISCUS) is a trade association that represents the producers and marketers of alcoholic beverages.[25] The council has a Code of Responsible Practices, to protect young people under the legal drinking age of 21 years from alcohol advertising. DISCUS also has separate recommendations for beverage companies to adhere to in order to responsibly market within digital communication platforms.[26] These principles state that marketing of alcohol should only be targeted where 71.6 percent of the audience is of legal age. However, as discussed later in this chapter, this code is often overlooked due to weak accountability and not followed by many beer, wine, alcohol and spirits companies.[27,28]

6. Beverage Consumption Trends of Adolescents

Sugar Sweetened Beverage
The National Health and Nutrition Survey Examination Surveys (NHANES) data found that 47 percent of added sugars consumed by American children and adults are from beverages,

excluding milk and 100 percent fruit juice (Figure 2.2). Data also revealed that SSB account for the majority (35 percent) of total energy intake from all beverages (Figure 2.3).[4]

Figure 2.2 Percent of Added Sugar Intake Among Americans from Food and Beverage Groups
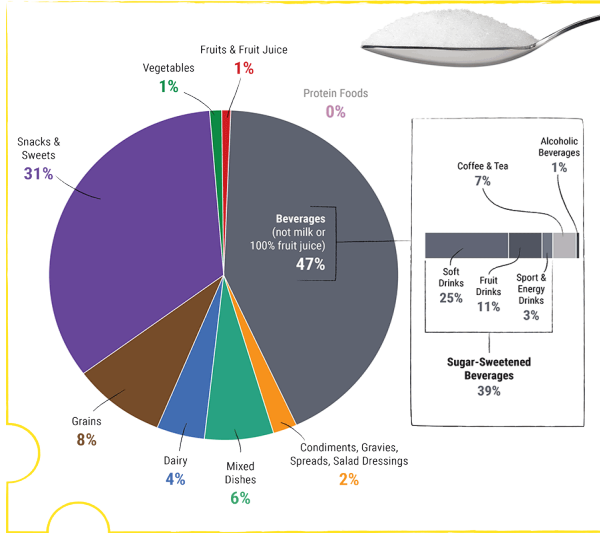
Figure 2.3 Percent of Energy Intake among Americans from Beverage Groups
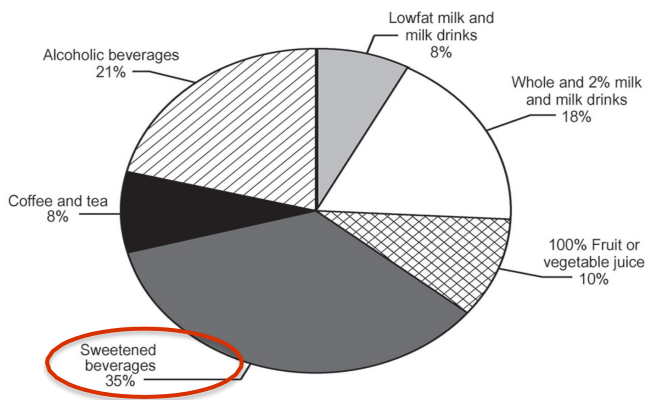
Source: What We Eat in America, NHANES 2009-2010

A January 2017 data brief reported the findings of two consecutive NHANES data sets and found that two thirds of America's youth (2-19 years old) drank at least one SSB a day between 2011-2014.[29] Males had a slightly higher occurrence of consumption than females, 64.5 percent

versus 61.3 percent. The data showed that an increase in age correlated with an increase in calories consumed from SSB.[29] Research also suggests that adolescents and teens are more likely to consume regular full calorie sodas than any other type of SSB products.[30,31]

Non-Hispanic white boys ages 2-19 years, consume the highest average daily amount of calories consumed from SSB (176 calories) compared to non-Hispanic Asian boys (73 calories).[29] Non-Hispanic black girls ages 2-19 years, were at the high end of the spectrum with an average of 156 calories from SSB and non-Hispanic Asians girls had the least average calories from SSB a day, at 58 calories. The difference in percent calories attributed to SSB consumption was found to be higher in non-Hispanic black girls than in non-Hispanic black boys.[29]

More recently a study using data from the NHANES found that between the years of 2003 and 2014 overall SSB consumption has decreased between both children and adults.[32] However, SSB consumption is still highest among youth ages 12-19 years and SSB consumption remains higher within ethnically and racially diverse populations including blacks, Mexican Americans, and non-Mexican Hispanics.[32] Although SSB intake has decreased among all US populations in recent years, a 2018 literature review found that total daily calorie intake has also decreased in the same time period, which suggests that SSB are still a main contributor to added sugars in children and adolescents' diets. [33]

SSB Relationship to Diet and Health Outcomes

Malik et al. (2006) conducted a systematic review, and concluded that there is an association between SSB intake and weight gain, obesity, and type 2 diabetes.[34] The review included 30

articles that examined SSB intake and its relation to obesity and/or weight gain. The articles chosen for the review included 15 cross-sectional studies, 10 prospective cohort studies, and five clinical trials. Of the 13 cross-sectional studies, six found positive associations between SSB intake and overweight or obesity. Of the four prospective cohort studies with child or adolescent populations, all found positive associations between SSB intake and weight gain. The experimental trials showed that decreased SSB intake resulted in decreased body weight and/or obesity prevalence. This finding was further supported by another review conducted by Malik et al. (2013), who concluded that SSB consumption correlates with body weight gain and obesity.[35] This conclusion was made from the findings of 32 studies; of both cohort and randomized control trials all of varying study designs and methodology with adjustments for confounding factors.[35]

A review by Hu (2013) found that SSB consumption is related to the progression of chronic preventable diseases.[36] The review discusses growing evidence that SSB are the largest contributor to added sugars intake, supporting the DGA recommendation to cap added sugars at 10 percent of one's total daily caloric intake.[4] The study concluded that decreasing SSB intake will reduce the occurrence of preventable diseases and conditions, specifically type 2 diabetes.[36] Hu (2013) urged immediate public action to limit SSB based on the abundance of existing research, which is sufficient enough to inform policy actions that include SSB taxes, limiting SSB access through portion caps, enacting legislation to support warning labels, and health promotion and media campaigns.[36]

Bleich and Vercammen (2018)[33] found positive associations with SSB intake and overweight/obesity, insulin resistance, dental caries, and caffeine related effects among children and adolescents ages 2-19 years. The review also covered studies related to SSB intake and substitution beverages, which differed between studies and included water, milk, and artificially sweetened drinks. Cross-sectional and longitudinal studies found positive associations between SSB substitution and decreases in weight measured by BMI.[33] The researchers also examined research related to SSB consumption and taste preferences. Based on the literature they concluded that a preference for sweetness is innate. However, the only existing research on sweetness is general and does not isolate SSB as the single source of sweetness. The authors suggest further research in SSB substitution and taste preference, while urging the need for policy implementation to support healthy food environments.[33]

Low-Calorie Beverages

A study by Piernas et al. (2013)[37] used Homescan 2000-2010 data and NHANES 2003-2010 data and found that calorically sweetened beverages account for the majority of purchases (81 percent), in comparison to low-calorie sweetened beverages (19 percent) in youth ages 2-18 years. However, the data shows that between 2003-2010, the consumption of calorically sweetened beverages decreased, and the consumption of low-calorie sweetened beverages has increased among youth.[37]

Sylvetsky et al. (2017)[38] found that 80 percent of children ages 12-17 years consumed low-calorie sweetener at least once a day, and that 20 percent of children consume low-calorie sweetener more than once a day based on NHANES information from 2009 to 2012. Over one

quarter of children, ages 12-17 years, consume low-calorie sweeteners with 22.3 percent attributed to low-calorie sweeteners from beverages. For both children and adults, non-Hispanic whites were found to have a higher low-calorie sweetener use (which includes beverages and food) than non-Hispanic blacks or Hispanics.[38]

Milk and Water

Park et al. (2010)[39] found that 54 percent of high school students drink less than three glasses of water a day. Individuals who consumed less water were found to be younger, have low milk, fruit juice, and vegetable intake and a higher non-diet soda and SSB intake. Obesity was found to be significantly associated with low water consumption as well.[39] Data from the NHANES 2007-2008 showed that 77.7 percent of male and 67.4 percent of female youth ages 12-19 years reported consuming milk daily.[40] However, only 20.7 percent of those who reported consuming milk consumed low-fat milk. Non-Hispanic white youth were more likely to consume low-fat milk than non-Hispanic blacks and Hispanic youth.[40]

Energy Drinks

A qualitative study conducted in Australia examined young adolescents and young adults perceptions on energy drinks.[41] The participants, ages 12-25 years, participated in one of eight interviews that lasted 30 to 50 minutes and were asked questions related to their knowledge of energy drink brands, their contents, and motivations or likelihood to consume or not consume these products. [41] Participants who consumed energy drinks reported consumption in order to receive the marketed benefits of the caffeine such as staying up to do homework, play video games, attend parties, and stay awake for long or late night drives.[41] Participants perceived males

to consume energy drinks more often than females and believed energy drinks were marketed more to males. Many participants discussed stories of themselves or someone they knew regarding the harmful effects of energy drink consumption related to withdrawal symptoms, heart palpitations, inability to concentrate, and even hospitalization. Other influences included parental behaviors, which included both positive and negative influence. Some participants stated that their parents had always advocated against the consumption of energy drinks due to their poor nutritional content whereas others had witnessed their parents consume many energy drinks in front of them.[41]

The participants were asked to share ideas to decrease energy drink consumption among their age group,[41] and suggested restricting the 710 mL size of energy drinks from being sold because it surpasses the 500 mL recommendation. Considerations on restricting sales to certain ages (12, 16, and 20 years old) were discussed as well. Participants who suggested an age limit were all over the age they suggested. Others suggested prohibiting the sale and consumption of energy drinks in schools, even if brought from home. Some participants challenged this suggestion and stated that restricting or banning energy drinks would cause adolescents to be more inclined to want to consume them. Other suggestions included enhancing the prominence of warning labels, using bland packaging (as seen with tobacco packaging),[42] increasing media coverage of related research and reports, and implementing more campaigns and education efforts on the harmful effects of energy drinks.[41]

The study offered policy recommendations to limit or restrict energy drinks advertisements including at point-of-purchase shelf locations. The researchers included the participants'

suggestion to design effective warning labels on energy drinks. The idea of having an adverse event reporting system was mentioned, which could quickly disseminate the news and provide more coverage of the negative effects of energy drinks.[41]

Currently, the US has the most marketing for energy drinks yet has no form of regulation or labeling of energy drinks, unlike in European Union countries and Australia.[43–45] Canada has labeling to warn against mixing Red Bull with alcohol and recommends to consume no more than two 8.3 ounce cans per day.[46] In 2013, Canada enacted legislation that capped the amount of caffeine to 180 mg per single serving bottle requiring 28 companies to reformulate their products.[47] Three countries including: Denmark, Uruguay, and Norway have banned all sales of the energy drink Red Bull.[48] The only policy measures taken in several US cities between 2015-2017 were to enact legislation to support SSB taxes (i.e., San Francisco, Berkeley, CA and Philadelphia, PA) and create a warning label on SSB products (San Francisco, CA), which was legally challenge by the ABA and rescinded in 2017.

Alcoholic Beverages

Although adolescents ages 14 to 18 years are not of legal age to purchase and consume alcoholic beverages, a 2015 survey found that 32.8 percent high school students had consumed alcohol in the past month and 17.7 percent had binge drank, defined as having consumed five or more drinks within a couple hours.[49] Underage drinking is associated with many adverse effects including poor academic performance, disruption of normal growth and development, memory problems, and an increase in automobile accidents.[50–52]

Anderson et al. (2009) studied the effects of alcohol advertising and promotion exposure on underage adolescents.[27] The paper reviewed longitudinal studies and found that 12 of the 13 studies provided evidence that exposure to advertisements and promotion of alcohol influenced underage adolescents to consume alcohol in which confounding factors were controlled.[27]

A study examined the accessibility and level of engagement underage youth could have with alcohol brands on the social media platforms, Twitter and Instagram, to determine if they properly follow the DISCUS recommendations.[25,26,53] These platforms were chosen because they are the most popular after Facebook, according to the PEW Research Center, which the FTC has found to successfully restrict alcohol advertising from underage users. The researchers created 10 accounts on each platform balanced by sex and age (13-20 years).[53] The study had two phases, the first aimed to determine whether or not the alcohol brand profiles were accessible (ability to view) to underage accounts and if interaction (share or view video/ picture content and write comments) was possible. The second phase aimed to determine if the underage accounts were able to follow the alcohol brand profiles and receive their updates and content. A total of 22 alcohol brand profiles were used for both social media platforms.[53]

The results found that all underage accounts were able to access and interact with profiles on both social media applications. However, findings from the second phase found that Twitter restricted the underage profiles from both following the alcohol brand profiles and receiving updates from them. This restriction did not extend to Instagram, where underage profiles had no limitations to follow and receive updates from alcohol brand profiles.[53]

In total, all profiles from each age group received an average of 362 updates from alcohol brands over the course of 30 days. As the week progressed the number of updates increased, with the highest amount on Thursdays and Fridays. The study found that additional alcohol brand profiles on Instagram that were not part of the study's 22 alcohol profile sample, were able to seek out these underage profiles to follow and engage with them.[53] This study supports previous research findings, which state that alcohol advertising target underage youth more so than those of legal age and that the regulations set by DISCUS are often overlooked, inadequately enforced, and therefore do not sufficiently protect underage youth.[27,28]

7. Descriptive and Experimental Research of Celebrity Endorsement

A study by Bragg et al. (2013)[19] examined celebrity endorsements by professional athletes featured in the *Bloomberg Business Week's* 2010 Power 100 report. The report selected athletes based on their importance in their professional sport in conjunction with the value of their endorsement contract. Other brands endorsed by the same athletes were searched for in addition to those included in the magazine by using AdScope. The endorsements were sorted into a total of 11 categories including, food/beverages, automotive, entertainment, finance, communications/office, sporting goods/apparel, retail, airlines, and other. The study documented that among 512 endorsed brands, food and beverage products represented one quarter (24 percent) of the athlete-endorsed advertisements in the sample.[19]

The researchers viewed every food and beverage advertisement and matched each to the brand it represented. They developed a nutrition score of each advertised food or beverage using the United Kingdom's (UK) Nutrient Profile Model. Based on this score, they found that of the food

and beverage brands endorsed by the athletes, 79 percent of the 62 food products advertised were EDNP and 93.4 percent of the 46 advertised beverage products contained 100 percent calories from added sugars. [19]

In a separate study conducted by Bragg et al. (2016)[54] celebrity musicians associated with food and beverage endorsements were identified through the 2013 and 2014 Billboard Hot 100 Chart, which ranked celebrities based on their popularity. Food and beverage endorsements were the second highest category of endorsed products with 65 unique celebrity endorsements. Of these, 71 percent of the endorsed beverages were SSB and 80.8 percent of the marketed foods were EDNP products based on the Nutrient Profile Model. These findings provide evidence that popular musicians heavily promote unhealthy nutrient-profile foods and beverages.[54]

Bragg et al. (2018) conducted a descriptive study analyzing sports sponsorships use of EDNP foods and beverages in advertising.[55] Using Nielsen data the researchers chose 10 organizations with sport events that were commonly viewed by children ages 2-17 years (412 million). These sponsorships existed both during televised programs and on YouTube spanning 234 unique sponsors. SSB were more likely to be advertised (52.4 percent) than non-SSB (20.8 percent). Full calorie sodas were most prominent (43.9 percent), followed by diet sodas (20.0 percent) and sports drinks (12.3 percent). Water and milk made up less than four percent of beverage products advertised. PepsiCo had the highest frequency of advertisements (69 percent) compared to the other beverage companies. This study supports that adolescents are frequently exposed to unhealthy nutrient-profile beverages. The authors strongly encourage that the CFBAI strengthen

their protections to eliminate marketing practices that expose US children and adolescents to SSB advertising.[55]

Zhou et al. (Forthcoming)[56] developed a database of celebrities and their related food and beverage product endorsements containing a total of 552 unique celebrities and 745 endorsements. In 2018 the database included 403 unique celebrities who endorsed beverages with 515 total celebrity beverage endorsements. The endorsements spanned beverage product categories that included water, dairy (milk), no-calorie beverages, low- or mid-calorie beverages, alcoholic beverages and SSB.[56]

In the database milk had the most endorsements (n=230) due to the inclusion of advertisements from the *Got Milk* campaign, which ran from 1995-2014 and was coordinated by the Milk Processors Education Program (MilkPEP).[56,57] Though a high number of celebrities were associated with this campaign, it did little to increase the sale and consumption of milk in the US. According to a USDA report, between 1977-1978 and 2007-2009 the number of adolescents and adults who reported that they do not consume milk rose from 41 to 54 percent.[58] The number of respondents who reported consuming milk three times a day dropped from 13 to 4 percent during this period. Zhou et al. found that 39 celebrities endorsed alcoholic beverages, 199 celebrity endorsements endorsed SSB, 11 celebrities endorsed low- or mid-calorie beverages, 16 celebrities endorsed no-calorie beverages and 20 celebrity endorsed water.[56]

Boyland et al. (2013) conducted an experimental study in the UK that compared food intake when children were exposed to either a televised celebrity endorsement, food advertisement, or a

non-food context advertisement.[59] The participants in the study, ages 8- 11 years were all

exposed to one of these advertisements during a television program where the control

advertisement was of a toy product. There were two bowls of potato chips, one labeled with the

brand and the other a generic brand, though both were the same product. The children were told

they could consume as much or as little of the food products as they wanted. The participants'

intake was then measured following the study. In each experimental condition children ate

significantly more from the chip bowl with the branded label. The children ate more chips in

general in response to the celebrity endorsement and specific food advertisement than in the non-

food context advertisement and control condition. The findings of this study support that

celebrity endorsement has the ability to influence behavioral outcomes.[59]

An Australian study conducted by Dixon et al. (2013)[60] surveyed pre-adolescents, with an

average age of 11, to compare the children's preference of EDNP products using different

marketing tactics and product promotion. The marketing tactics in the study included a nutrient

content claim, celebrity athlete endorsement or premium offer for various EDNP food products.

The results of the study concluded that nutrient content claims had the most influence, leading

participants to state they are more likely to consume the items when claims were present.

Celebrity athlete endorsements led male participants to be more likely to prefer an EDNP

product when exposed to the athlete endorsement condition. The researchers propose that this

may be due to the fact that boys may identify with this type of celebrity more closely, or that

marketers target boys more aggressively than girls with celebrity athletes.[60]

8. Models and Frameworks to Understand the Influence of Celebrity Endorsement

The use of celebrities in advertisements by companies is intended to increase consumers'

attention and intent to purchase advertised goods and services.[61] Hovland et al. (1953) found that

credible sources have more influence than non-credible sources and have the power to influence

behavioral decisions.[62] Ohanian et al. (1990)[61] developed this finding and used source credibility

to explain how consumers are more likely to be influenced by advertisements with celebrities.

Ohanian et al. (1990)[61] stated that credible celebrities are perceived to be knowledgeable,

trustworthy and attractive, and influence attitudes and behaviors of consumers on brand and

product choice, purchase and use.

In a follow up paper by Ohanian et al. (1991)[63] celebrity credibility is defined to be a

combination of the three constructs: expertise, trustworthiness, and attractiveness. *Celebrity*

expertise is the extent to which a communicator is perceived to possess knowledge, skills,

qualifications or experience and considered to convey accurate information. *Celebrity*

trustworthiness is the audience's confidence that the source provides information in an objective

and honest manner. *Celebrity attractiveness* is the physical attractiveness, elegance or likability

of the source to the audience.[63]

Hoffman and Tan (2015)[64] conducted a systematic review that identified 14 mechanisms to

describe how celebrities may influence the health-related behaviors of individuals and

populations. These mechanisms span five different disciplines including: economics, marketing,

neuroscience, psychology and sociology. This review supports the use of credibility as a

component of influence and falls under the marketing discipline.

More recently, Hoffman (2017) published a protocol to conduct a systematic review to further understand celebrity impact on health related knowledge, attitudes, behaviors, and status outcomes. Both Hoffman and Tan (2015) and Hoffman et al. (2017) acknowledged that celebrity endorsement has the power to influence the publics' behavioral choices related to health and can be beneficial or harmful.[64,65] This was seen when Angelina Jolie publicly discussed her genetic risk for breast cancer, which increased the number of reported breast cancer screenings. Yet, it also has the power to negatively influence the public's decisions such as when Jenny McCarthy spoke out against vaccines due to the belief that they play a role in the development of autism in children, leading to increased public skepticism.[65] These examples demonstrate the need to address this phenomenon within the government, healthcare organizations, research groups, and medical associations through regulations and education with evidence-based research.[64]

9. Public Health Concerns about Celebrities Partnering with Companies

Celebrity involvement with unhealthy nutrient-profile products and brands are not without criticism from the public and public health advocacy groups such as Center for Science in the Public Interest (CSPI). In the spring of 2016 actress and musician, Selena Gomez publically announced her involvement in the TCCC's "Share a Coke" campaign.[66] In response to this announcement, CSPI publically criticized the entertainer for promoting diabetes and obesity by partnering with the campaign promotion. As a celebrity with a vast social media presence of over 128 million Instagram followers and 53.2 million Twitter followers, Gomez's support of the campaign, is likely to not only be seen by American youth, but influence their behavioral decisions as well. CSPI has criticized other celebrities, such as Beyonce, Katy Perry,

Macklemore and Shaquille O'Neal, for partnering with companies that promote unhealthy nutrient-profile food and beverage products.[66]

In 2017, Kendall Jenner was criticized after appearing in an advertisement for full-calorie Pepsi, due to what viewers perceived to be trivializing the Black Lives Matter movement.[67] Consequently, the advertisement was widely publicized and thus exposed to the public including adolescents. PepsiCo pulled the commercial from TV stations one day after its release. The commercial was brought back into media light once her emotional reaction to the commercial's criticism premiered on E!'s *Keeping up with the Kardashians* in the fall of 2017.[68]

CSPI was not the only public group to question Beyonce's intentions and morals.[69] During an interview with Flaunt magazine, the entertainer was asked to make a statement related to the conflict of interest in teaming up with former First Lady, Michelle Obama, to fight against childhood obesity, and signing a deal with Pepsi shortly after. The entertainer responded that, "Pepsi is a brand I've grown up seeing my heroes collaborate with. The company respects musicians and artistry. I wouldn't encourage any person, especially a child, to live life without balance."[69] Over the years, beverage companies have promoted an "energy balance" approach to justify marketing their SSB products to consumers as long as they have a balanced lifestyle that includes physical activity.[70] Energy balance is accomplished when energy intake equals energy expenditure and thus weight is maintained.[71] Beverage companies have capitalized on this fact and used it to their advantage by reframing their products role in the typical diet in order to continue sales and consumption internationally.[70] One example of this effort is the American Beverage Association's (ABA) *Balance Calories* initiative[72] discussed later in this chapter.

Beverage companies neglect to mention that the physical activity needed to balance out discretionary calories is not necessarily easy to attain. For example, a 110-pound adolescent would need to walk five miles or run for 50 minutes in order to burn 250 calories in a 20-ounce soda.[73]

10. Current Policies and Actions to Limit SSB Consumption

Many policy approaches have been proposed and/or passed throughout the nation to decrease SSB consumption within Americans. A SSB excise tax, which is an indirect tax charged on the sale of a particular good,[74] was first enacted in Berkeley, Philadelphia, and the Navajo Nation (through a junk food tax).[75] Soon after, three other cities in California followed suit including San Francisco, Albany, and Oakland as well as Boulder and Seattle that have passed ordinances for excise SSB taxes.[76]

In response to these advancements, the beverage industry complex (i.e., manufacturers, distributors and their trade associations such as the ABA) have worked to defeat policy advancements and legislation at local, state and national levels by spending a total of 67 million dollars between 2009 and 2016 to lobby against SSB control policies.[77] For example, during the summer of 2017, the ABA, which represents the business interests of PepsiCo, TCCC, and Dr Pepper Snapple Group, sued the city of Philadelphia and later appealed the case to the state Supreme Court in Pennsylvania. However, their efforts to remove the tax was unsuccessful and the excise tax was implemented.[78] Though these policies mentioned aim to decrease SSB consumption throughout the nation, there are few that specifically target decreasing the marketing and advertising of SSB in general or to specific populations such as teens.

CSPI has advocated for policies to limit access to SSB. In fact, CSPI has advocated that Americans reduce their SSB consumption of since 1998, when founder Michael Jacobson first published the report, *Liquid Candy*, which has since been updated.[79]

11. Beverage Industry Initiatives to Decrease SSB Marketing and Consumption

Children's Food and Beverage Advertising Initiative (CFBAI)

The CFBAI aims to limit and restrict the marketing of unhealthy nutrient-profile of food and beverages to children under 12 years.[80] The initiative began in 2006 and since its launch, 18 major companies spanning the restaurant, beverage, and food industry have pledged to follow the voluntary initiative.[81] The CFBAI stated that by, December/January 2014 all members would implement uniform nutrition standards in response to former First Lady Michelle Obama's work to prevent childhood obesity and adhere to the FTC marketing recommendations.[82] The nutrition guidelines are based on standards set by the Interagency Working Group (IWG) formed by the FTC, Centers for Disease Control and Prevention (CDC), and the Food and Drug Administration (FDA).[83] However, the nutrition standards for beverages only specify criteria for milk and juices, excluding a majority of beverage groups associated with celebrity endorsements.

While it seems these companies are making an effort to promote positive change, it is unclear if any difference has been accomplished related to the initiative's effectiveness. In a study comparing the CFBAI products with the federal IWG's recommendations, the nutrient content requirements for the previous (CFBAI) were significantly more lenient than those of the IWG.[84]

As seen in the Sugary Drink FACTS report, SSB products from companies pledged to the initiatives were advertised to children under 12 years as these beverages are not included in the initiative's nutrition criteria.[21] Though the CFBAI is a move in a positive direction to eliminate the marketing of unhealthy nutrient-profile products to children under the age of 12 years, it would be more advantageous for the program to increase the age cutoff to include adolescents, strengthen the nutrition criteria, and properly enforce and monitor practices pledged by participating companies. This notion has long been advocated for by CSPI, and is also a component of the WHO's and Rudd Center's Sugary Drink FACTS marketing recommendations.[15,21,85]

The ABA's Balance Calories Initiative and Evaluation

The beverage industry has made other attempts to encourage healthier beverage choices among young consumers. For example, following the release of the eighth edition of the DGA 2015-2020, the ABA posted a news statement declaring their support to promote healthy dietary behavior among Americans.[86] The ABA announced plans to help Americans achieve this through their *Balance Calories* initiative, which launched in 2015 and aimed to decrease caloric intake and added sugars from beverages in American diets.[72] The initiative's national implications aimed to adjust their marketing tactics to promote low- and no-calorie beverages. Local implications include a focus on communities with low interest or awareness by increasing the marketing of low- and no-calorie beverages in these areas.[87] The ABA claimed that this initiative will have "real world impact" and while they have established goals, the action plan for achieving these has not been explicitly stated.[86] The ABA also failed to acknowledge the prevalence of celebrity endorsement within marketing or address any means of altering this

marketing practice.

These challenges have been identified in an early evaluation of the *Balance Calories* initiative, supported by RWJF. Researchers Deborah Cohen, Laura Bogart, and Gabriela Castro, found that this initiative has had little impact.[88] The evaluation included assessments of marketing in retail food outlets in the local communities exposed to the initiative compared to retail food outlets in communities without exposure. Trained observers assessed the placement and promotions of various beverages and found that full-calorie beverages had more retail space in stores than low-calorie options. Sales of these products were often combined with coupons or deals encouraging purchase of not only the SSB but of EDNP food products as well. Smaller portioned mini soda cans were often found placed next to regular or larger-sized SSB and/or were not priced competitively to help encourage purchase. [88]

The researchers interviewed stakeholders and consumers and conducted surveys with adolescents and adults exposed to the initiative. The data collected from the interviews revealed that many of the participants misinterpreted the messages of the initiative.[88] For example, some believed that the messages were meant to encourage consumers to broaden their beverage choices to include new flavors and/or brands, to increase soda intake, or to encourage the reformulation of soda to have a healthier nutrient-profile. Of the participants that did understand the message to balance their consumption of beverages, most still did not understand it how the ABA intended, which was to implement balance within all lifestyle behaviors including diet and physical activity. Some other misperceptions noted were the beliefs that clear SSB are healthier than darker-colored SSB, and that sports drinks are healthy nutrient-profile beverages. In one instance, a boy

stated that TCCC's Sprite was a good beverage choice after viewing a commercial where LeBron James endorsed the product, attributing the drink to enhancing the celebrity's athletic skills. [88] Interviews post-intervention with store managers revealed that they prioritized sales and therefore viewed soda as their biggest profit and were not inclined to promote lower-calorie beverages, including bottled water.[88] Though the findings are not supportive of the *Balance Calories* planned effects, the researchers noted that this was an early evaluation and may not be conclusive of the initiative over time.[88]

Other Beverage Company Efforts to Decrease SSB Consumption

Companies have individually made efforts to minimize SSB consumption. For example, TCCC has significantly expanded its beverage sector, including branded water such as Smart Water, with celebrity endorsements including Tom Brady and Jennifer Aniston.[56] In 2015, PepsiCo released a Performance with Purpose report stating their health and sustainability goals to reduce SSB consumption by 2025.[89] The goals also include plans to reformulate their products so that at least two-thirds of their beverage products are less than or equal to 100 calories per 12-ounce serving. However, this reformulation goal is still above the expert guidelines, which recommend that low- or mid-calorie beverages contain 40 calories or fewer per 12 ounces and the Smart Snacks in School standards that recommend low- or mid-calorie beverages should be 60 calories or less per 12 ounces.[1,2]

As part of this goal, PepsiCo has recently entered the sparkling water market to compete among other brands such as La Croix, with their new product brand Bubly.[90] Bubly comes in eight flavors and has no calories or added sweeteners. The product was first advertised in March of

2018 during the 90th Oscars and is using engagement through marketing tactics that includes the use of graphics interchange format (GIF), which is a file format for storage of digital visual informations.[91] Bubly has appeared on Ellen DeGeneres's show where guests on the episode all received a Target gift card to purchase the Bubly beverage product and was implemented in a contest in partnership with the product's promotion. Actor, Neil Patrick Harris was featured on Ellen's television show to promote the beverage, and appears in GIF advertisements posted on the brand's social media platforms (Twitter, Instagram, and Facebook).[92]

12. Conclusions to Inform the Research Questions

The RWJF's HER healthy beverage guidelines were published in 2013, however no research has been conducted to compare adolescents' typical beverage intake with the expert guidelines. The first objective aimed to fill this knowledge gap by identifying whether adolescents from either northern or southwest Virginia adhere to these beverage guidelines by having a sample of recruited participants complete the BEVQ-15.

Research exists on the extensiveness that beverage companies market to and advertise to youth within multiple media platforms, yet there is no data or evidence to identify whether or not adolescents are able to identify and associate celebrities with the different beverage categories endorsed by celebrities. Trends in advertising show that certain ethnic groups are targeted more so than others and are exposed to more advertising, and research suggests this targeted marketing influences their behavioral decisions. The second objective identified how accurately teens are able to match celebrities with the beverage categories they endorse.

Celebrity endorsements have been shown to influence adolescents' consumption behaviors, however, evidence is lacking on the perceptions and attitudes teens have toward celebrity endorsements of beverages. Celebrity credibility has been known to be a driver in this influence as well, yet no research exists to determine what specific components of celebrity credibility teens believe to be most influential. The third and last research objective addressed these knowledge gaps and explored adolescents' views about celebrity endorsement of beverage products and brands. This includes which aspects of celebrity credibility teens found most influential on their behavioral choices.

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Chapter 3 Methods

Research Objectives

Objective one for this research study was to analyze teens' beverage consumption patterns and how they aligned with expert recommended intake. Objective two aimed to assess teens' familiarity with celebrities and the beverage categories these celebrities endorse. Lastly, objective three was to conduct a Q methodology study to explore teens' views about credibility related to the celebrities' beverage product and brand endorsements.

 The first research objective used the BEVQ-15 to examine adolescents' current reported beverage intake,[1] and compared the findings to the 2013 HER healthy beverage guidelines and other expert guidelines, which are to consume no more than eight ounces of SSB per day. The second research objective used a familiarity survey to explore the percentage of teens who were able to recognize 48 celebrities, and then correctly associate each celebrity with one of the six beverage product categories that they endorsed. The third research objective conducted a Q methodology study among the same group of teens (n=28) in northern and southwest Virginia to explore their views about celebrity credibility related to celebrities' endorsement of different beverage products and brands; and to complete a post Q sort questionnaire to identify the most salient components of credibility and to assist in the interpretation of the results. The Virginia Tech Institutional Review Board approved the study protocol for this research on December 13, 2017.

Pilot Study

A pilot study was conducted with three participants (n=3) ages 14 to 18 years to verify that at least 50 percent or more of the selected celebrities (n=48) for research objectives two and three were recognized; to test that the research instructions were clear and easy to follow; and to ensure that participants could complete all study activities within the 90-minute time frame indicated on the recruitment flyer.

Participants and Study Design

 A total of 28 adolescents ages 14-18 years in both northern and southwest Virginia were recruited to participate in this study. The location in northern Virginia location was chosen to include a greater ethnic and racial diversity, and the southwest location allowed for greater flexibility, as it was located near Virginia Tech. Participants were recruited starting February 2, 2018 and the data collection was completed by February 22, 2018. Participants were recruited through posted recruitment flyers in community locations and word of mouth in both locations. All study activities were completed within the same session and study identification numbers were given to all participants to protect their confidentiality.

Study Objective 1: Adolescents' Beverage Intake Compared to the HER Guidelines

Beverage Questionnaire (BEVQ-15)

Hedrick et al. (2012)[1] developed a questionnaire to determine beverage consumption patterns of adults to help identify one's usual beverage intake. Originally the questionnaire contained 19 components but was reduced to 15 components to include water, 100% fruit juice, sweetened juice beverage/drink, whole milk and reduced fat milk, low-fat/fat-free milk (including soy

milk), nut milk, regular soft drinks, diet soft drinks/artificially sweetened drinks, sweetened tea, tea or coffee with cream and/or sugar, tea or coffee (black without artificial sweetener), beer/ales/wine coolers/non-alcoholic or light beer, hard liquor, wine, and energy and sports drinks.

The BEVQ-15 asks how often each component is consumed with varying time degrees as well as how much is consumed at each time in ounce or cup equivalents. The questionnaire is designed to be easy to fill out, taking about two minutes to complete (Appendix H).[1] The questionnaire has been found to be reliable in identifying changes in usual beverage intake overtime and has been validated in children and adolescent populations (ages 6-11 and 12-18 years) when compared to multiple 24-hour diet recalls.[2,3]

HER Healthy Beverage Guidelines

The 2013 HER recommendations are tailored to five distinct age categories.[4] The recommendations for adolescents ages 14-18 years are as follows: water, unflavored nonfat or low fat milk, 100 percent juice, and mid-calorie beverages up to 40 calories per 12-ounce serving for adolescents. The recommendations therefore do not include SSB of any kind including soda, energy drinks, sports drinks, fruit drinks or caffeinated drinks.[4]

Activity 1: BEVQ-15

All participants (n=28) completed the BEVQ-15 after providing a signed consent form (from their parents or themselves depending on their age) and/or a signed assent form if under 18 years old. Verbal consent by the parent was given over the phone if not present. The consent forms

provided clear language stating that participants were able to skip any questions they were uncomfortable completing. To determine the adolescents' beverage consumption patterns, participants completed a hard copy version of the BEVQ-15.[1] This process took no longer than 10 minutes to complete. Upon reviewing the participants' BEVQ responses, one questionnaire was excluded from the results of the study as it was incorrectly completed.

Study Objective 2: Adolescents' Familiarity with Celebrities and Beverage Endorsement
Activity 2: Celebrity Familiarity Survey

All recruited participants (n=28) completed a celebrity familiarity survey that determined whether adolescents were able to recognize 48 different ethnically and racially diverse celebrities. A second component of the survey was to explore if adolescents were able to associate the same 48 celebrities with one or more of the six beverage categories the celebrities endorse (i.e., SSB, low- or mid-calorie beverages, no-calorie beverages, water, milk, and alcohol). The survey used the USDA's Smart Snack in School standards that define a low- or mid-calorie beverage as containing less than or equal to 60 calories per 12 ounces.[5] The activity began by asking five demographic questions related to the participants' age, sex, race/ethnicity, grade level, and socio-economic status based on participation in food assistance programs.

The celebrities chosen for the familiarity survey (n=48) were taken from a pre-existing database with a total of 552 unique celebrities and 745 endorsements.[6] There were 403 unique celebrities who endorsed beverages and 515 total celebrity beverage endorsements. The celebrities were selected to include a balanced distribution between sex, occupation, race/ethnicity, and beverage category endorsements. Four additional celebrities were identified outside of the database through an Internet search of recent celebrity beverage endorsements in order to have a balanced

representation between beverage categories as well as race/ethnicity of celebrities. This led to equal male and female representation of celebrities used in the sort (n=24 each). By occupation there were a total of 29 entertainers, 18 athletes, and one celebrity in the "other" category, Michelle Obama. Some of these celebrities were associated with multiple beverage endorsements and therefore there were a total of 66 possible beverages between the 48 celebrities. Broken down by beverage product category there were eight endorsements of no-calorie beverages, six endorsements of low-calorie beverages, seventeen endorsements of SSB, eight endorsements of alcohol, nineteen endorsements of milk, and eight endorsements of water. Although the target age group of the study cannot legally consume alcohol, there is evidence that suggests that teens consume alcohol[7-9] as discussed in chapter two.

 If participants were familiar with the celebrity, the participants were instructed to record a "yes" response and then continue to mark all categories of beverages that they associated the celebrity to have endorsements with. The survey included definitions and example beverages for the possible beverage categories they could choose from. The possible beverage categories were as follows: sugar-sweetened beverages, low- or mid-calorie beverages, no-calorie beverages, water, milk, alcohol, or they could choose "I do not know which product category". This portion of the activity took no longer than 10 minutes to complete (Appendix I).

Study Objective 3: Adolescents' Perspectives on Celebrity Credibility

Q Methodology Study

Q methodology was developed by William Stephenson in 1935 and is considered an addition to Charles Spearman's R methodology approach.[10] Q methodology is exploratory and aims to

examine and analyze subjective views of a certain issue, allowing participants to express their

own perspectives and thoughts. The ultimate goal is to understand single viewpoints that could

lead to conceptual generalizations and comparison between the viewpoints.[10] Q methodology is

easily feasible and encourages the participation of children and adolescents in research.[11] The

means of gathering the data through the act of sorting the statement or image cards may also

allow for additional reflection by the participant.[11]

Celebrity Source Credibility Model

Research has shown that credible sources have more influence than non-credible sources and that

they also have the power to influence behavioral changes.[12] This idea has come to be known as

source credibility, originated by Hovland et al. (1953)[13] finding that credibility involves both

expertness and trustworthiness. Ohanian et al. (1990)[12] wanted to further identify the factors that

make up a credible source. Ohanian et al. (1990) [12] studied the source credibility model and

paired it with a source attractiveness model to develop a source credibility model composed of

three constructs. These constructs include perceived expertise, trustworthiness and attractiveness.

This information helped to develop a source credibility model that has been validated as a

reliable scale to measure perceived celebrity credibility based on the three constructs. Ohanian et

al. (1991)[14] used the model to assess the influence of celebrity image on intention to purchase,

finding that perceived celebrity credibility is due to a combination of these factors, some with

greater influence than others. Intention to purchase may be affected by how well the celebrity fits

with the product they are endorsing as perceived by the audience which is known as celebrity

congruency.[15]

Activity 3: Q Methodology Study

All participants completed the card-sort activity. The activity asked the participants to review 48 cards, each one containing a photo image of a celebrity endorsing a beverage product with the corresponding name of the celebrity and a random number used to record the sort results on a card score sheet (Appendix L). The celebrities chosen for the activity were the same as used in the previous activity. This activity required each celebrity to be paired with only one of their beverage endorsements and led to the inclusion of six no-calorie beverage endorsements, six low-calorie beverage endorsements, twelve SSB endorsements, eight alcohol endorsements, nine milk endorsements and seven water endorsements. The cards were then sorted onto a grid with a fixed normal distribution with columns labeled from -4 to +4 (most *in*credible or *un*believable to most credible). Each participant was asked to independently sort the celebrity photos into three piles: (1) celebrities they believed were the most credible; (2) celebrities they believed were the most *in*credible or *un*believable; and (3) celebrities they did not recognize or had mixed feelings about. The participants then placed the images of celebrities they believe are "most credible" starting with the +4 column until all cards from that pile are placed on the card-sorting sheet. They then did the same with the pile of celebrity cards they believed to be "most *in*credible" starting with the -4 column and finished with the pile they were unsure about. Once the participant was satisfied with their selections, the responses were then recorded on the card score sheet with the corresponding number on each card. This process took no longer than 30 minutes to complete.

Activity 4: Post Q Sort Questionnaire

After each participant completed the card-sorting activity, he/she completed the final activity, a post Q sort six-item questionnaire that explored why each participant chose to sort the cards in the manner they did. The questions then explored which celebrities the participants believed to be positive role models and to describe which celebrities they had strong emotional connections to, which could be a positive or negative connection. Lastly, the questionnaire asked the participants about the features of credibility they believed to be most important. This activity lasted no more than 10 minutes to complete. Each participant received a $10.00 Walmart gift card following the completion of all study activities.

Data Analysis

BEVQ-15 Analysis

The BEVQ-15 responses were scored using a template through Excel. A "1" was entered into the corresponding bubble that each participant filled in with "how often" and "how much" for each beverage category. The template was used to calculate the average daily fluid ounces and calories consumed for each beverage category, as well as the total average daily fluid ounces and calories for alcohol, total milk, SSB and total beverages. The findings were compared with the HER's 2013 healthy beverage guidelines to sort participants by those who adhered to the recommendations and those who did not. Data was also used to group participants by those who adhered with the more lenient recommendation by expert groups to consume no more than eight ounces of SSB day and those who consumed over this recommendation. These groups were then further analyzed using demographic information using SPSS software version 24 for Windows (IBM Corporation, USA, 2016) to conduct a chi square test for categorical variables

(gender/race) and an independent t test for continuing variables (age) to determine any trends between the groups.

Celebrity Familiarity Survey Analysis

The data collected from this survey was used to identify the percent of teens who were able to accurately recognize celebrities as well as the beverage product category or categories these celebrities endorse into four quartiles (recognize at least 25%, 50%, 75%, or 100%). The percent familiarity for each celebrity was analyzed.

Q Sort Analysis

The 48 celebrity images (Q sample) and 28 Q sorts (P set) were input into the PQMethod 2.35 software system (2014, General Public License, Munich Germany),[16] which was downloaded free of charge onto the researcher's, Samantha Adas (SA), laptop. The researcher also completed a Q sort that was entered into the PQMethod 2.35 data software system to acknowledge the researcher's potential biases when interpreting the results. The results with and without the researchers Q sort were later compared.

 As recommended by Watts and Stenner (2012),[10] a centroid factor analysis was conducted for the 28 Q sorts. This method left all possible solutions or factors (up to seven factors) available to enable the researcher to determine which factors would be further analyzed in the study. The factors underwent a varimax rotation using the PQMethod 2.35 software. The rotation of factors identifies how much each Q sort identifies with each factor, known as factor loading. Varimax rotation was chosen over the alternative, by-hand rotation, for ease and ability to encompass the

viewpoints of the entire group. A significant factor loading was identified with a p value of less than 0.01, using the equation recommended by Watts and Stenner:[10] 2.58 x (1√48)= 2.58 x (0.144)= 0.372= 0.38. Participants who loaded onto distinct factors greater than or equal to 0.38 were considered significant. No participant significantly loaded onto more than one factor, meaning no sorts were confounded.

The PQMethod allowed for automatic flagging of significant loaders. Six significant factors were found and the six-, four-, three-factor solutions were examined in order to determine which factor solution best represented the perspectives of the 28 participants. A three-factor solution was chosen for further analysis because it included the Q sorts of 27 participants, versus the six- and four-factor solutions, which both included the Q sorts of only 23 participants. Thus, the three-factor solution showed a greater representation of the participants (27 of 28 participants) and accounted for 38 percent of the study's variance.

The data were then qualitatively interpreted using the factor arrays, which are, "a single Q sort configured to represent the viewpoint of a particular factor".[10] The factor arrays were used to identify emergent themes between each factor as well as comparison of the Z-scores between the three factors. A Z-score is the total weighted score of an item subtracted from the mean of total weighted scores for all items, divided by the standard deviation of the total weighted scores for all items. Z-scores are what allow for and provide a means of comparison of how the 48 celebrities were sorted across each of the three factors.

SA completed a Q sort herself that was analyzed along with the participants' Q sorts in order to account for any bias during the researcher's interpretation of the data. The analysis with the inclusion of the researcher's Q sort revealed a four-factor solution that included 25 of the 29 total Q sorts that significantly loaded onto each factor. Due to better participant representation in the three-factor solution without SA's Q sort (n=27), the researcher chose to further analyze the three-factor solution where her sort did not load on any of these factors. SPSS software version 24 was used to identify trends between the participants' demographics and factors they loaded on. Trends between beverage intake and factors participants' loaded on were identified as well.

Post Q Sort Questionnaire Analysis

The six-item questionnaire was used to help interpret the viewpoints of participants from the emerging factors of the Q sort. A descriptive analysis was used to identify celebrities most often chosen by participants as positive role models, celebrities that participants had strong emotional connections to, and to determine which components of the three constructs of celebrity were selected most frequently by the study participants.

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Chapter 4 Results

The results for the exploratory study are described in this chapter in order of each study objective, which include 1) participants' demographics, 2) BEVQ-15 responses, 3) celebrity familiarity survey responses, 4) Q methodology responses, 4) post Q sort responses, and 5) trends across the data collected.

Participants' Demographic Profile

A majority of the participants were 14 years old (50.0 percent) and freshman (53.6 percent) in high school. A majority of the participants were white and male, although there was some racial/and ethnic representation within the sample. None of the participants were enrolled in any type of government supplemental assistance program. The demographic profile of the participants is further summarized in Table 4.1.

Table 4.1 Participants' Demographic Profile

Characteristics	Participants (n=28) (%)
Age (years)	
14	14 (50.0%)
15	10 (35.7)
16	2 (7.1%)
17	1 (3.6%)
18	1 (3.6%)
Grade	
Freshman	15 (53.6%)
Sophomore	8 (28.6%)
Junior	3 (10.7%)
Senior	1 (3.6%)
Middle Schooler	1 (3.6%)
Sex	
Male	17 (60.7%)
Female	11 (39.3%)
Race	
White	19 (67.9%)
Asian	4 (14.3%)
Hispanic	4 (14.3%)
Black	1 (3.6%)

BEVQ-15

Of the 27 participants responses included in the analysis, only one participant (a 14-year old

Asian male) reported a beverage intake that adhered to the HER beverage recommendations for

adolescents 14 to 18 years old. This participant did not consume any SSB or caffeinated

beverages. A 15-year-old Hispanic female participant, reported zero ounces of SSB consumption

per day, but consumed tea and/or coffee, which are both caffeinated beverages; therefore her

beverage intake did not adhere to the HER beverage guidelines.

Including the two participants described, 16 of the 27 participants (59.3%), met the guidelines to
consume no more than eight ounces of SSB a day supported by the AAP and the Beverage
Guidance Panel. [1,2]

Of the sample of participants 30.5 percent of their beverage calories came from SSB. A majority
of the participants (n=24) consumed milk and 45.8 percent of these participants consumed low-
fat or nonfat milk. There were five participants who consumed both whole and low-fat or nonfat
milk. Additional beverage intake of the 27 participants can be seen in Table 4.2.

Table 4.2 Participants' Beverage Intake (n=27)

Beverage Category	Participants (n)	Mean Fluid Ounces	Standard Deviation	Range (1.0-127.7)	Average Calories (kcals)
Water	26	33.0	17.7	63.0	0
Fruit Juice	18	4.2	4.8	15.4	74
Sweetened Juice	15	4.2	4.0	11.0	60
Whole Milk	19	11.6	10.8	36.0	230
Low Fat/Nonfat Milk	11	12.6	11.6	35.0	153
Nut Milk	1	2.9	0	1.0	28
Total Milk	24	15.1	15.6	71.0	411
Soft Drinks	18	3.1	1.7	4.6	41
Energy/Sports Drinks	16	5.5	6.0	22.9	77
Diet Drinks	7	2.5	1.5	3.7	1
Sweet Tea	4	8.1	0.7	23.0	81
Black Tea/Coffee	4	2.0	1.0	2.0	0
Creamer Tea/Coffee	5	1.4	0.9	2.0	14
Total SSB	25	9.0	7.1	25.7	117
Total Beverages	27	60.6	28.6	127.7	383

One participant did not meet any of the HER recommended beverage guidelines. Of the 27

participants in the analysis, the majority (n=26) met at least one of the recommendations, almost

two third (n=20) met at least two recommendations, and less than 4 percent (n=4) met at least

three recommendations. The most commonly followed recommendation was water consumption

(n=26). Nine of eighteen participants consumed 100 percent fruit juice, met the HER guidelines

of no more than 8 ounces a day. Although 11 participants reported consumption of low-fat or

nonfat milk, only six adhered to the HER guidelines. This was due to mixed consumption of both

whole and low-fat milks. Non-adherence to HER guidelines was attributed to high prevalence of

SSB consumption (n=25) and whole milk consumption (n=18). Adherence to recommendations

is summarized in Tables 4.3 and 4.4.

Table 4.3   Adherence to HER recommendations

Adherence to HER recommendations (#)	Participants who met guidelines (%)	Participants (n)
1 recommendation	96.3	26
2 recommendations	74.1%	20
3 recommendations	3.7%	4

Table 4.4   Beverage Guideline Adherence

Beverage Guideline	Participants who met guidelines (%)	Participants (n)
Water	96.3%	26
100% Fruit Juice	33.3%	9
Low-fat or Nonfat Milk	22.2%	6

Celebrity Familiarity Survey

A majority of participants recognized at least half (50.9 percent) of the 48 celebrities. No

participant recognized all 48 celebrities. The highest recognition was 77.0 percent of the 48

celebrities. A total of 60.7 percent of participants recognized between half and three quarters (51-

75 percent) of the celebrities, and about a third of the participants (35.7 percent) recognized less

than half of the 48 celebrities. This information is summarized in Figure 4.1.

Figure 4.1   Percent of Celebrities Recognized by Participants
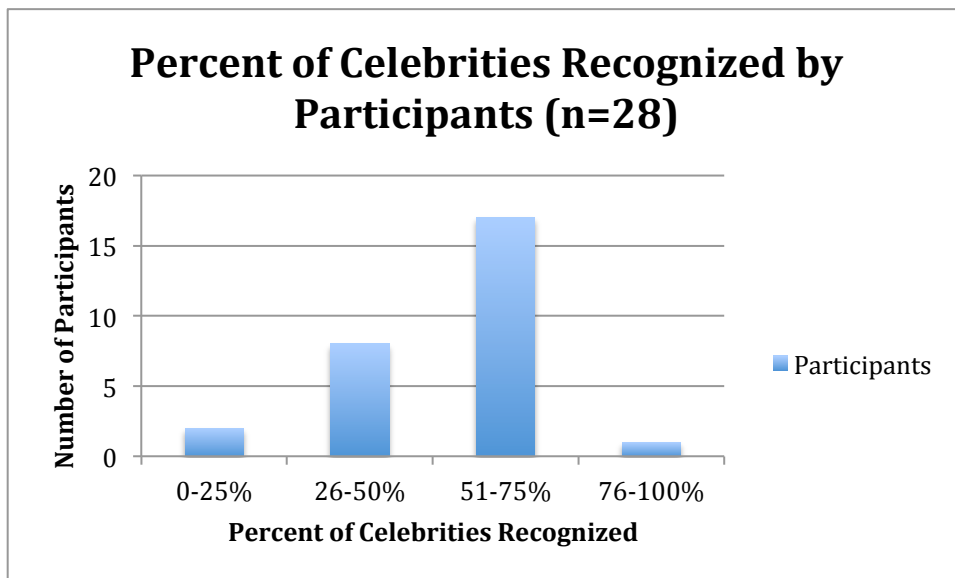
The average percent of accurate recognition of the 66 possible unique beverage category endorsements by the 48 celebrities was 4.9 percent. The highest percent of accurate recognition of the celebrity and beverage category endorsed was 15.2 percent.

The only celebrity who had 100 percent recognition by the 28 participants was the female entertainer Arianna Grande, followed by Ellen DeGeneres and Selena Gomez (96.4 percent recognition). Taylor Swift and Michelle Obama were the third most recognized with 92.9 percent recognition by the 28 participants. Two male athletes, Joe Mauer and Apollo Anton Ohno, were not recognized by any of the participants.

The celebrity who was most accurately associated with the correct beverage category was professional basketball athlete, Lebron James, as 13 of the 21 participants who recognized him (61.9 percent) listed him as an endorser of the SSB Sprite. Professional basketball athlete, Stephen Curry, was another celebrity most accurately associated with his endorsement of the SSB, Capri Sun, with 9 of 23 participants (39.1 percent) correctly associating the beverage category to the athlete. Michelle Obama was the third most accurately recognized and associated with the correct beverage category, water, through the Partnership for a Healthier America's Drink Up campaign by six of the 25 participants (24.0 percent) who recognized her.

Q Methodology Study and Post Q Sort Six-Item Questionnaire

Summary of three distinct viewpoints

Each participant's Q sort (n=28) was input into the PQMethod 2.35 software. The factor analysis performed on the Q sorts identified three unique factors or viewpoints. The factors describe adolescents' perspectives of celebrity credibility related to beverage product endorsement. These three viewpoints represented 27 of the 28 participant Q sorts with 38 percent variance. The only Q sort that was not found to significantly load onto one of the three factors was a 14-year-old, Hispanic male participant. The post Q sort questionnaire was use as an aid to interpret the three emerging factors.

Viewpoint 1 *Entertainment Image Emulators* (n=13) ranked mostly entertainers as more credible than athletes when endorsing beverages, because they expressed they were influencers. Viewpoint 2 *Inspirational Celebrities for Perceived Healthier Beverages* (n=12) found athletes to be credible sources when promoting beverages that they believed were healthy in order to support athletic performance. Viewpoint 3 *Multi-Cultural Celebrity Appreciators* (n=2) found celebrities of all genders, races, and occupations to be credible, whether it was because they felt inspired by them or were a fan of their work. Table 4.3 summarizes the demographic profile of the participants across the three distinct viewpoints.

Table 4.5   Participants' Demographic Profile by Viewpoint (n=27)

	Viewpoint 1	**Viewpoint 2**	**Viewpoint 3**
Participants (n)	13	12	2
Sex			
Females	6	2	2
Males	7	10	0
Race			
White	9	8	2
Hispanic	2	2	0
Asian	2	2	0
Black	0	1	0
Age			
14	4	9	1
15	7	2	0
16	1	1	0
17	0	0	1
18	1	0	0
Grade			
Freshman	3	10	1
Sophomore	7	1	0
Junior	1	1	1
Senior	1	0	0
Middle Schooler	1	0	0

Viewpoint 1: Entertainment Image Emulators

A total of 13 participants loaded onto factor one, which accounted for 18 percent of the study's

variance. The participants who loaded onto this viewpoint were the most balanced by sex with

six females and seven males. Two of the four Hispanic participants and two of the four Asian

participants loaded onto this factor (Table 4.2). This group of participants ranked many

entertainers higher than participants in other factors, and ranked many athletes lower compared

to other factors as further detailed in the crib sheets (Appendix S). Based on Z-scores, two of the

top ranked celebrities in this factor, Beyonce Knowles and Katy Perry, are endorsers of the full-

calorie SSB Pepsi. Ellen DeGeneres endorses the TCCC brand no-calorie beverage Vitamin

Water Zero. Celebrities, Selena Gomez and Michelle Obama, endorse milk (Borden) or water,

which are both healthy nutrient-profile beverages recommended by the HER beverage

guidelines. These top ranked celebrities are all entertainers with the exception of former First

Lady Michelle Obama, and are diverse in terms of race and ethnicity.

Celebrities ranked as most *in*credible (or *un*believable) based on the Z-scores for this factor

include: Kim Kardashian and four athletes: McKayla Maroney, Darelle Revis, Noah

Syndergaard, and Amar'e Stoudemire. Kim Kardahsian endorses the alcohol brand Midori, and

each of these athletes promotes either a low-calorie beverage or milk. These celebrities and their

beverage endorsements are depicted in Figure 4.2.

Figure 4.2   Factor 1: Top 5 and Bottom 5 Celebrities Based on Credibility

Collectively, the participants who loaded on this viewpoint sorted the celebrities higher because they felt the celebrity was likely to consume the beverage they endorsed, whereas the celebrities ranked low were believed to be untrustworthy, fake, or known to be dramatic. Based on the participants high ranking of celebrities with both EDNP and healthy nutrient-profile beverage endorsements, it is likely that this group of participants were more influenced on the overall credibility of the celebrity themselves rather than the nutrient-profile of the beverage endorsed by the celebrity.

Viewpoint 2: Inspirational Celebrities for Perceived Healthier Beverages

There were 12 participants who loaded onto factor two with 12 percent of the variance. A majority of the participants from this viewpoint were males (n=10), nine of which were members of a soccer team. The remaining Hispanic, Asian, and one black participant loaded onto this factor (Table 4.2). This group of participants found both female and male athletes along with strong women to be most credible based on the top five Z-scores. As mentioned, it is known that

Factor 1 Analysis (5 positive Z-Scores)

| Michelle Obama | 31 | Ellen Degeneres | 23 | Beyonce | 35 | Selena Gomez | 28 | Katy Perry | 8 |

Factor 1 Analysis (5 negative Z-scores)

| McKayla Maroney | 38 | Darelle Revis | 41 | Noah Syndergaard | 10 | Kim Kardashian | 32 | Amar'e Stoudemire | 43 |

68
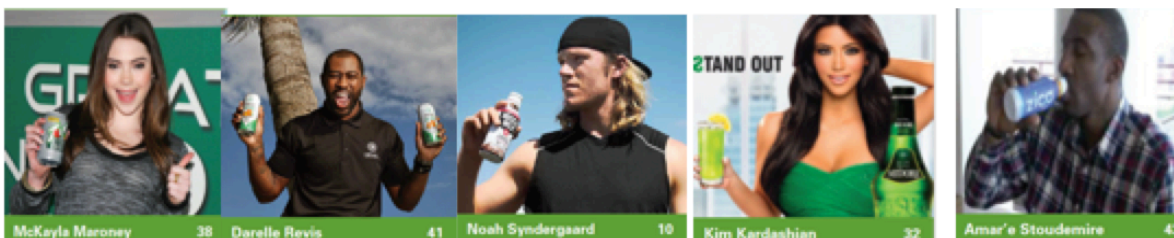
at least nine of the 12 participants were athletes themselves, which most likely contributed to their view that celebrity athletes are credible. The remaining athlete celebrities from the total 48 celebrities were ranked higher in factor two than in factors one and three as shown in the crib sheet (Appendix S).

Two of the endorsed beverages by the celebrities ranked in the top five are SSB, both by athletes. Tennis player Serena Williams is an endorser of the SSB, Gatorade and basketball player Lebron James is an endorser of the SSB, Sprite. Soccer player David Beckham is an endorser of an alcohol brand, Haig Club Distillery. As in factor one, Ellen DeGeneres and Michelle Obama are also among top ranked celebrities deemed most credible.

The celebrities ranked as most *in*credible based on factor Z-scores are all entertainers or TV personalities. Each entertainer endorses EDNP beverages (SSB or alcohol) with the exception of Taylor Swift, who endorses the TCCC's Diet Coke brand. These celebrities and their beverage endorsements are depicted in Figure 4.3.

Figure 4.3 Factor 2: Top 5 and Bottom 5 Celebrities Based on Credibility

69
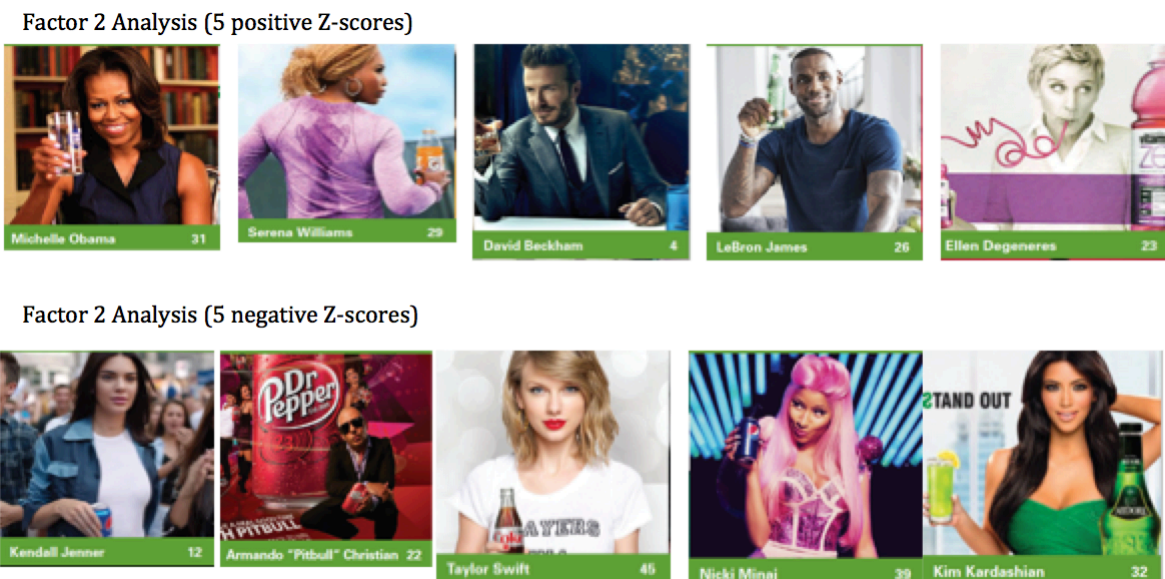
This group of participants placed more emphasis than any other viewpoint on the fact that athletes know what they need to fuel their bodies and what is healthy to justify the celebrities' beverage endorsements and beliefs on their credibility. One participant even stated that Serena Williams needs energy and promoting PepsiCo's sports drink brand Gatorade, makes her more trustworthy and credible. Participants in this factor sorted celebrities as most *in*credible because they felt the card images of the beverage product endorsements were either inauthentic or the celebrities were promoting the beverage product to simply make a profit.

Viewpoint 3: Multi-Cultural Celebrity Appreciators

Two white female participants loaded onto factor three with four percent of the total variance. Factor three is the only factor to have only white representation among the participants.

These two participants ranked male celebrities higher than other factors, and many athletes lower than the other factors as well. The top ranked celebrities include athletes Serena Williams and Tom Brady. Football player Tom Brady is associated with the TCCC brand Smartwater. Entertainer Arianna Grande also endorses branded water as well. Entertainers, Cole Sprouse and Hugh Jackman were the remaining top ranked celebrities who endorse milk through the *GotMilk?* campaign and the SSB, Lipton Iced Tea, marketed by Unilever.

In comparison with the first two viewpoints, the most credible celebrities in viewpoint three endorsed more healthy nutrient-profile beverages. All of the celebrities sorted as most *in*credible, promoted a SSB with the exception of basketball player Kevin Durant, who endorsed the low-

calorie beverage Sparkling ICE. These celebrities and their beverage endorsements are depicted in Figure 4.4.

Figure 4.4 Factor 3: Top 5 and Bottom 5 Celebrities Based on Credibility
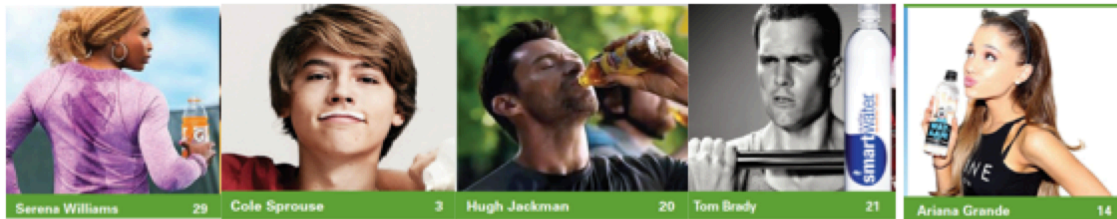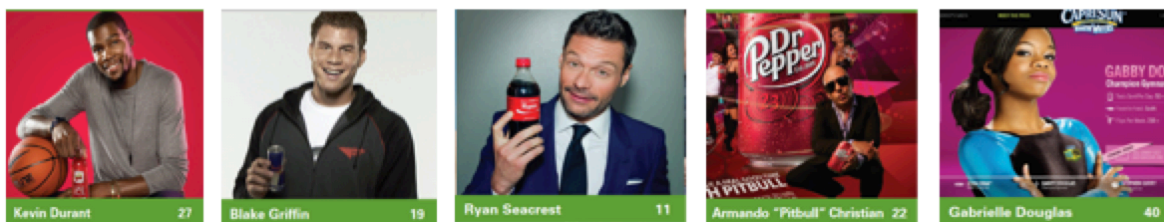
Consensus and Distinguishing Images of Celebrities Across the Three Factors

The celebrities with the highest amount of consensus across all three factors were Aly Raisman (0 in all three factors), George Clooney (1, 0, 1), Alex Rodriguez (-1, 0, -1), Jordin Sparks (-1, -1, 0) and Eva Longoria (-2, -1, -2). Based on the celebrity familiarity survey and the post Q sort questionnaire Jordin Sparks, Alex Rodriguez and Eva Longoria were not well known among the participants, which is most likely the reason why they were ranked similarly between viewpoints. Athlete Aly Raismain and actor George Clooney, however were recognized by most participants and when described were given positive comments.

Celebrities with highest amount of disagreement included Kendall Jenner (-2, -3, 3), Gabrielle Douglas (1, 3, -4), Taylor Swift (3, -4, 1), Joe Mauer (-3, 2, -3) and Selena Gomez (3, -2, -2). Taking the Q sort questionnaire responses into consideration, participants either liked or disliked Kendall Jenner and Taylor Swift, which supports the disagreement seen. Participants either associated Kendall Jenner with the Kardashian family (not well liked among participants) or supported her modeling career. Participants either sorted Taylor Swift highly because they enjoy her music or sorted her low because they dislike her music as stated in the questionnaire responses. The higher rankings for athlete Gabrielle Douglas is supported by positive comments made for Douglas's athletic career. The lower rankings within the respective factors are most likely due to participants who were unfamiliar with the athlete as no negative comments were described. The only comments made about entertainer Selena Gomez were positive suggesting that participants who ranked her lower in factors two and three may find other celebrities more credible but do not necessarily find Selena Gomez *in*credible. Joe Mauer was not recognized by any participant in the celebrity familiarity survey, because of this participants may have been unsure where to sort the celebrity for the Q sort leading to the disagreement between factors.

Participants were likely to sort the celebrities as most credible when they recognized them or believed they were more likely to consume the beverage they endorsed in the card images. This was determined based on the post Q sort responses. Celebrities were likely to be sorted as most *in*credible when participants had negative opinions about them, did not believe they consumed the beverage depicted in the advertising, or questioned their motives. Two thirds of participants, 67.9 percent, identified former First Lady Michelle Obama as one of the top three celebrities they believed to be a positive role model to help them follow a healthy lifestyle. Ellen

DeGeneres was the next celebrity most often chosen by 42.9 percent of participants. Serena Williams was the third celebrity most likely to be chosen by 25.0 percent of the participants. Athletes in general were commonly listed as celebrities who participants' believed to be positive role models to promote health.

Participants were asked to list the celebrities they had a strong emotional connection to. A majority of participants, 85.7 percent, described only *positive* emotional connections. Michelle Obama was the most likely to be listed by 64.3 percent of the participants, followed by Ellen DeGeneres (42.9 percent), and Lebron James (25.0 percent). All of these celebrities were chosen and described with a strong positive emotional connection.

Five participants identified celebrities they had *negative* emotional connections to in their response. Kim Kardashian was described by three of these five participants because they collectively described the celebrity as being surrounded by drama with a background that was not "positive". One participant listed Stephen Curry and Kevin Durant because they viewed these athletes as rivals of Lebron James who the participant looked up to. Other participants listed musicians Drake and Taylor Swift because they disliked their music.

The final question asked participants to circle the top three features of celebrity credibility that they felt were important to them when buying or consuming a beverage. The three most chosen features were honest (60.7 percent), knowledgeable (53.6 percent), and likeability (39.3 percent). The highest ranked features came from each of the three credibility constructs, although in general, participants were more likely to choose features from the expertise or trustworthy

construct than the attractiveness construct. These findings support that all three of the constructs, expertise, trustworthiness, and attractiveness, comprise celebrity credibility as found in the 1990 Ohanian Source Celebrity Credibility Model.[3] The participants' responses are summarized in Figure 4.5.

Figure 4.5   Participants' Top Features of Celebrity Credibility by Category
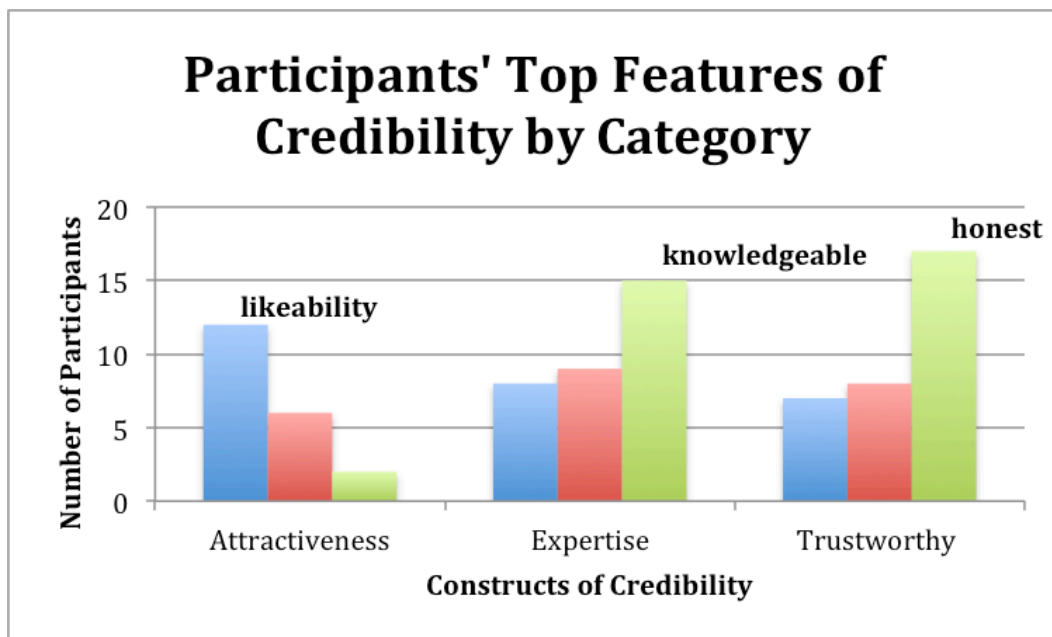
Trends in Demographics and Consumption of No More than Eight Ounces of SSB

No significant demographics trends based on sex, race/ethnicity, or age were found between groups who consumed over or less than 8 ounces of SSB per day.

Trends in BEVQ-15 Responses and Viewpoints

A one-way analysis of variance (ANOVA) test compared each beverage category group from the BEVQ-15 among the participants in each of the three distinct viewpoints. The only statistically significant difference found ($p = \leq 0.05$) was for water intake between participants who loaded

onto factors one and three, where participants in factor one had an average daily water intake of 24.1 fluid ounces and participants who loaded on factor three had an average daily water intake of 62.0 fluid ounces. Table 4.4 summarizes the average intake by participants for each beverage category based on the three viewpoints that emerged from the Q methodology study.

Participants who loaded onto factor one had the highest daily average of calories from SSB (155 kcals) whereas participants who loaded onto factor three had the lowest calories from SSB (63 kcals). Participants who loaded onto factor two had a daily average of 92 kcals from SSB per day. The average calories for total daily beverage intake across the viewpoints were as follows in consecutive order of the factors: 408 kcals, 407 kcals, and 153 kcal

Table 4.6   Average Beverage Intakes in Fluid Ounces by Viewpoint (n=27)[1]

Beverage Category	Viewpoint 1			Viewpoint 2			Viewpoint 3		
	Participants (n)	Mean Intake (Fl. Oz)	Standard Deviation	Participants (n)	Mean Intake (Fl. Oz)	Standard Deviation	Participants (n)	Mean Intake (Fl. Oz)	Standard Deviation
Water	11	24.1*	13.7	12	36.0	17.3	2	62.0*	2.8
100% Juice	9	4.0	4.8	7	5.4	5.3	2	0.9	0.4
Sweetened Juice	9	4.5	4.4	4	4.4	4.1	1	2.9	0.0
Soft Drinks	9	3.3	1.6	8	2.6	2.0	1	4.3	0.0
Whole Milk	10	9.5	10.8	8	15.0	11.1	1	5.7	0.0
Low-Fat/Nonfat Milk	5	13.1	14.0	4	13.6	12.3	1	2.9	0.0
Milk	12	13.4	19.2	10	17.7	12.6	1	8.6	0.0
Sports/Energy Drinks	8	5.4	4.1	7	6.1	8.3	0	0.0	0.0
Sweet Tea	3	9.8	12.4	0	0.0		1	2.9	0.0
Diet Drinks	6	2.2	1.4		0.0		1	4.3	0.0
Black Tea/Coffee	1	1.1	0.0	3	2.3	1.0	0	0.0	0.0
Creamer with Tea/Coffee	3	1.0	0.3	2	2.0	1.2	0	0.0	0.0
Total SSB	12	11.8	6.9	12	7.3	7.3	2	5.0	3.0
Total Beverages	12	51.8	25.2	12	67.5	33.3	2	74.3	15.4

[1] Viewpoint 1: Entertainment Image Emulators
Viewpoint 2: Inspirational Celebrities for Perceived Healthier Beverages
Viewpoint 3: Multi-cultural Celebrity Appreciators
*Statistically significant differences using ANOVA at $p \leq 0.05$

Chapter 4 References

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Chapter 5 Discussion

The findings from this study show that of the 27 adolescents who successfully completed the BEVQ-15, a majority (96.3 percent) did not meet the HER healthy beverage guidelines for their age group. However, 59.3 percent of the participants consumed no more than eight fluid ounces of SSB a day, which coincides with the more lenient recommendations from the AAP and Beverage Guidance Panel.[1,2] Yet, the average SSB intake found was 8.89 fluid ounce and 116.8 kcals a day, which is over recommendations from the DGA, AAP, and Beverage Guidance Panel.[1–3]

A majority of the participants reported that they consume SSB in some amount daily. Though the guidelines state beverages that are $\leq$40 calories or less are permitted they must not include caffeine or be fortified.[4] Due to the nature of the questionnaire this additional information was not part of the participants' response so it is unclear whether or not the SSB they consumed were within the beverage allowance.

Of the sample of participants 30.5 percent of their beverage calories came from SSB, compared to national data that states that 35 percent of beverage calories are attributed to SSB.[3] A majority of the participants (n=24) consumed milk and 45.8 percent of these participants consumed low-fat or nonfat milk, which is higher than the national average, 20.7 percent, of children and adolescents who consume low-fat or nonfat milk.[5]

The average amount of accurately associated beverage product categories with each celebrity was very low among the participants, however this could have been due to preconceived beliefs

of the celebrity and how they view the celebrity themselves. For example, participants identified former First Lady Michelle Obama as an endorser of water, milk, or no-calorie beverages. Although not all of these responses were correct, this finding shows that adolescents view the former First Lady as a person who encourages healthy beverages based on their exposure to her through the media and involvement in the Let's Move Initiative (2007-2015). These preconceived beliefs and opinions persisted as participants often incorrectly assumed athletes selected for the study were endorsers of healthy nutrient-profile beverages such as milk. Participants also incorrectly assumed that musicians and entertainers were endorsers of low- or no-calorie beverages.

Nine participants (32.1 percent) identified Lebron James as a celebrity with whom they had a strong emotional connection. Lebron James was also the celebrity who had the highest recognition and correct associated beverage category endorsement of the SSB, Sprite. Although this beverage choice is EDNP, adolescents' beliefs regarding celebrity credibility are impacted by their likeability of a celebrity and not necessarily the nutrient content of what a celebrity endorses. Due to this factor, adolescents' may be more inclined to consume a beverage endorsed by a celebrity because they are admirers or enthusiasts of them and not based on the beverages' nutritional value.

Due to the nature of the study, when the participants were given the 48 cards to sort, each of which had a celebrity with an associated beverage image, their responses from the previous activity were either validated or negated. Participants sorted celebrities as most credible because they felt they were influencers or could relate to them in one way or another. For example, some

participants related to David Beckham because they were also soccer players and another participant stated that she could relate to Selena Gomez because she was also Hispanic. However, as seen with the all white participants who loaded onto factor three, racial or ethnic relation is not the only factor that influenced perceived credibility.

Athletes were likely to be credible because participants trusted athletes to know what is healthy for optimal athletic performance. However, as seen with Lebron James who endorses the TCCC brand Sprite, this perception may not be accurate. Yet, participants still perceived him to be credible based on overriding factors of credibility.

Another point to be noted is that the PepsiCo beverage brand, Gatorade, promoted by professional tennis athlete Serena Williams in this study, has been marketed for over 50 years, and is a brand synonymous with sports.[6] Therefore, some adolescents in this study did not perceive this beverage to be a SSB, but a source of fuel for athletes. While intense exercise may benefit from Gatorade, it may not be necessary for the average active adolescent and contribute to excessive calories and unhealthy weight gain.[7] It can be inferred that adolescents take aspects of celebrity credibility and health into account, but may place more emphasis on celebrity credibility depending on their connection to or beliefs about a celebrity.

In terms of adolescent views about most *un*believable or *in*credible celebrities, one participant stated they did not find model Kendall Jenner credible because they do not believe she would consume the beverage she was seen promoting, Pepsi, because her occupation relies on her to

"keep her figure". This idea supports that adolescents' perspectives of celebrity credibility also take a celebrity's expertise and congruency into account.

Many participants chose celebrities who were among their top three role models in leading a healthy lifestyle (question 4) or five strong emotional connections to (question 5) because they enjoyed their sport, music, movies, or TV shows. Strong female celebrities spanning a range of occupations (i.e., Michelle Obama, Ellen DeGeneres, and Serena Williams) were most likely to be listed as a positive role model to help adolescents follow a healthy lifestyle. Adolescents were found to consider celebrity congruency with a product (expertise) as well as their likeability (attractiveness) when sorting the celebrity images based on the post Q sort questionnaire. Ultimately, a celebrity's likeability overpowered their decision-making when choosing the most credible celebrity in terms of the Q sort. However, this is different than the majority of responses to the post Q sort question, "*Circle your top three important features of celebrity credibility below that are important to you when you buy or consume a beverage*", where most participants selected features from the expertise and trustworthy category. This shows that although adolescents strive to focus on trust and expertise when considering a celebrity's credibility, they may not be aware of how much features of attractiveness weighs in on their decision-making.

The top three selected features of credibility came from each of the three constructs: likeability, knowledgeable and honest. This finding supports that all three constructs are important in the celebrity credibility framework developed by Ohanian.[8] However, as previously stated, participants were more likely to choose features from the expertise (38.09 percent) and

trustworthiness (38.09 percent) constructs than features from the attractiveness (23.81 percent) construct.

Statistical analysis was conducted to find any trends between viewpoints and the beverage intake of participants belonging to each viewpoint. Again, due to a small participant size significant differences between viewpoints and beverage intake were not likely. Although a statistically significant difference was only found between factor one and factor three water intake (where participants in factor three had a greater average intake), notable differences were still found. Energy and sports drinks had a higher average consumption with factor two participants than the participants who loaded onto factor one. Participants who loaded onto factor three reported zero consumption of energy and sports drinks. This finding may show an association between sports beverage intake and adolescents who view athletes to be credible, as these participants had a higher energy and sports drink intake than participants in other factors.

Participants who loaded onto factor two had higher daily average intakes of the healthy nutrient-profile beverages milk (17.7 ounces) and 100 percent fruit juice (5.4 ounces) and the lowest soft drink intake (2.6 ounces) in comparison with the participants in the other two factors. The findings in this small sample show that adolescents who perceive athletes to be more credible may also be associated with a higher intake of healthy nutrient-profile beverages (although not significant). Participants who loaded onto factors one and three were the only participants to consume diet beverages. These factors were the viewpoints where participants' had higher perceived credibility of entertainers who make up a majority of diet beverage product endorsements (i.e., Taylor Swift for Diet Coke). Average calories from SSB consumed were the

highest for participants who loaded onto factor one (155 kcals) and lowest for the participants

who loaded onto factor three (63 kcals). However, total beverage calories were similar for

participants who loaded onto factor one (408 kcals) and two (407 kcals). Participants who loaded

onto factor three had the lowest daily average intake of calories from SSB and total beverages.

These were also the participants who placed less emphasis on the credibility of celebrities by

occupation and perhaps were greater influenced by the beverage's nutritional value in the

endorsement.

Study Strengths and Limitations

Teens are most often targeted through advertising but little research exists to their views on this

practice. This study contributes to empirical literature and identifies a sample of adolescents'

views on celebrity credibility related to beverage endorsements. This study also identified a

sample of teens' ability to recognize and associate celebrities with the beverage products they

endorse. Limitations of the study include a predominately white participant group and therefore

the sample was not necessarily an accurate representation of the larger adolescent population. A

majority of the participants were male (60.7 percent), which may have affected the celebrities

recognized and most chosen as credible or *in*credible for the Q methodology sort. Due to the

small sample size finding statistical differences between beverage intake and participants from

different viewpoints were unlikely.

The pictures used for the celebrities in the celebrity familiarity survey may have been a

limitation for participants if the celebrity appeared different than how the participants were used

to seeing them. For example, during the card sort one participant made a comment that she now

recognized the celebrity and had not before in the previous activity, because the celebrity was wearing too much makeup. Some participants did not recognize a celebrity in the survey, but then ranked the same celebrity high or wrote positive comments about them in the post Q sort questionnaire. This may have been due to the choice of pictures used in the activity two-celebrity familiarity survey. Additionally, some participants may have misunderstood the study instructions and sorted celebrities they did not recognize as *in*credible, when the instructions stated to list unfamiliar celebrities as neutral. This contributed to possible flaws in the results as seen in factor one, where three of the five lowest ranked celebrities, based on the Z-scores, had low recognition of the participants of that factor based on the celebrity familiarity survey.

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Chapter 6 Conclusion

This study found that a majority of adolescents surveyed do not adhere to the 2013 HER healthy beverage guidelines. A majority of participants (60.7 percent) recognized between 51 and 75 percent of celebrities in the study (n=48). The highest percent of accurate recognition of a celebrity and beverage product category endorsed was 15.2 percent with an average of 4.9 percent among all participants (n=28). This exploratory research examined adolescents' perspectives of celebrities beverage product endorsements and found three distinct viewpoints: (1) *Entertainment Image Emulators, (2) Inspirational Celebrities for Perceived Healthier Beverages, and (3) Multi-Cultural Celebrity Appreciators*. These viewpoints support that adolescents value credibility as an important feature, and the features most relevant to them are honesty (reflects trustworthiness), knowledgeable (reflects expertise) and likeability (reflects attractiveness).

Implications for Policy and Research

Although a majority of the participants reported consuming eight fluid ounces or less SSB per day, only one participant from the sample adhered to the HER beverage guidelines for this age group (14-18 years). This data demonstrates that improvement still needs to be made in encouraging healthy beverage consumption among adolescents, in order to avoid health consequences associated with SSB intake. By increasing healthy beverage consumption, this would decrease SSB consumption and lead in the reduction of obesity risks and improve diet quality of children and adolescents.[1]

Rather than aiming to decrease general SSB intake, it may be more effective to work to decrease intake of certain beverage categories. Sport and energy drinks may be a particular beverage of concern and sales have been steadily increasing (53 percent increase from 2007 to 2012) as opposed to SSB including sodas which have decreased in sales.[2] Consumption of energy and sports drinks was reported by 64 percent of the participants in this study. Energy drinks pose a potential health risk for adolescents who are vulnerable to the effects of not only high caffeine intake but caffeine's heightened effect when combined with other commonly found energy drinks ingredients, such as guarana and taurine.[2] Negative consequences include caffeine toxicity, seizures, acute mania, stress, increased association with drug or substance abuse, and in some cases death.[2–4] Public health groups, expert scientists and political leaders have all pressed the government to improve regulations regarding energy drinks. These regulations include: eliminate the marketing of energy drinks to children under the age of 18 years, implement labeling detailing the amount of caffeine by container, and restrict sales of products to minors under the age of 18 years.[2–4] Though little action has been taken on the national level, in 2013 Sufolk County, New York was the first to implement regulation to ban distribution of energy drink samples and coupons to minors and on county property such as parks and beaches. Other local and state government's are encouraged to follow similar steps.[2]

Voluntary initiatives such as the CFBAI should update nutrition criteria to include all beverage categories that include SSB such as soda, sports and energy drinks, etc as the findings in this study support that SSB comprise almost one-third of total beverage calories. The CFBAI should increase the age that is protected from marketing to reflect national drinking patterns, and

include adolescents up to 18 years old, who are more likely to consume and be exposed to the

marketing of EDNP beverages in the United States than any other age group.[5–7]

Although research is mixed, there is a body of literature supporting the idea that role models

have the ability to influence and impact adolescents' purchasing intentions and behaviors.[8–10]

Role models include figures that adolescents' look up to with or without direct contact, the latter

termed "vicarious role models" by Bandura in 1976.[11] Vicarious role models include celebrities

of all types from entertainers to athletes. Celebrities perceived to be role models of adolescents'

therefore have an influence on adolescents' consumption patterns based on products the

celebrities endorse.[9,10] This concept was also brought up during a workshop hosted by the

National Academies of Sciences in 2017, where the idea of using celebrities who are interested

in health and nutrition to advertise healthy nutrient-profile beverages was discussed.[12] The use of

credible celebrities to endorse healthy nutrient-profile beverages should be included across all

forms of media, including traditional and nontraditional, and incorporated into future media

advocacy campaigns to best reach adolescents. Using the celebrities found credible in this study

for future experimental research could provide more insight to develop these campaigns.

Campaigns to encourage decreasing SSB consumption have been developed such as the NYC

Department of Health and Mental Hygiene, *Are you Pouring on the Pounds?*, through

advertisements and posters.[13] Other, media campaigns have taken a different approach by

encouraging healthy eating behaviors. For example, the FNV campaign funded by Partnership

for a Healthier America uses celebrities to promote fruits and vegetables through in store

advertisements and across social media. Kraak et al. (2018)[14] recently evaluated the campaign

and the effects in launch cities Fresno, California and Norfolk, Virginia. Key takeaways from evaluations of these campaigns among others could inform public health professionals and guide them to develop policy and future campaigns to effectively promote healthier beverage consumption patterns among adolescents.

Policies to hold beverage companies and celebrities accountable for the beverage products they endorse should be implemented as a means of protecting the adolescent population, which could also improve the disproportionate marketing between ethnic groups. Beverage companies, especially those with wide reach (ABA), and celebrities should also be encouraged to pledge to only promote healthy nutrient-profile beverages to adolescents'. PepsiCo has taken positive steps with the promotion of their new sparkling beverage product, Bubly, and has appeared on the Ellen DeGeneres show several times.[15] Ellen DeGeneres was perceived to be credible by the adolescents in this study and the marketing campaign for the beverage product allows for engagement by viewers, both of which could lead this endorsement and campaign to have positive implications that other beverage companies should follow.

Experimental research exists regarding celebrities influence on children's behavioral decisions[16,17] and is needed among adolescent populations as well. Future research could use the findings of this study to determine if credible celebrities have a greater impact on the adolescents' likelihood to purchase or consume beverages taking certain factors into account such as race/ethnicity in comparison to marketing tactics without celebrity endorsements. For example, male adolescent athletes in this study found athletes to be credible. Therefore, future research could test whether or not celebrity athletes who promote healthy nutrient-profile

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beverages alter adolescents' intended and actual consumption patterns positively. This could help

target marketing to be most effective at influencing positive behavioral change by using certain

celebrities targeted to specific demographics.

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Appendixes

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Assent for Teens Under 18 Years Old Participating in Research that Involve Human Subjects

Project Title: *A Research Study that Explores the Views of Adolescents of Celebrity Endorsement of Beverage Brands and Products in Virginia*

Principal Investigator:
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Co-Investigator:
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     Department of Human Nutrition, Foods and Exercise
     Virginia Tech, Blacksburg, VA 24061
     Email: sadas16@vt.edu; Phone: (571) 217-6515

I. Purpose of this Research Project

The purpose of this study is to explore your view of celebrities who are paid to endorse beverage products or brands.

The information from this study may be used to encourage beverage companies and celebrities to market products and brands that support a healthy diet.

The results of this study will be published in a thesis.

The results of this study will also be summarized in research papers or presentations.

II. Procedures

If you agree to participate in this research study, you will be asked to:

1) Read and sign this form to tell us that you want to participate in this study;

2) Complete a questionnaire asking about your usual beverage intake (no more than 10 minutes to complete);

3) Answer a survey that includes questions about yourself and what celebrities you recognize and brand categories associated with them (no more than 20 minutes to complete);

4) Complete a sort of 48 pictures of celebrities in the order of celebrities you believe are "most credible" to the celebrities you believe are "most *in*credible" (no more than 30 minutes to complete) and;

5) Answer 6 questions in a post card-sort questionnaire about the activities you just completed (no more than 30 minutes to complete).

III. Risks

There are very few dangers, or risks, associated with your participation in this study. Your answers to the short questions in the beginning of the study will ask you some basic information about you including your age, race/ethnicity, grade in school, and gender.

Then the researcher will ask you if you want to continue with the other activities of the study. The study been reviewed and approved by the Virginia Tech Institutional Review Board. You do not have to participate in this study and you may choose to quit any part of the study at any time.

IV. Benefits

There are no direct benefits for you to be involved in the study other than to share your beliefs, knowledge, and attitudes of the of the celebrity endorsement used in the study. The information from the research study may have societal benefits by informing future policies, programs and campaigns to promote healthy beverages to teens.

V. Compensation

You will receive a $10.00 Walmart gift card after the study has ended. If you choose to end the study early, or choose to not take part in certain parts of the study you will still receive the $10.00 Walmart gift card.

VI. Extent of Anonymity and Confidentiality

All of the identifiable information taken from the activities you complete will be kept secret at all times and will be know to only the research team. This form will be stored separately from your beverage questionnaire including demographic questions, celebrity familiarity survey, card-sort responses, and post card-sort questionnaire. Only trained researchers involved in this study will have access to identifiable information that may help recognize you.

VII. Freedom to Withdraw

You do not have to participate in this study and you are free to quit at any time. You do not have to answer all of the questions or questions you are not comfortable with. There will be no consequences if you choose to not answer a question or decide to withdraw before the study is complete.

VIII. Subject's Consent

I have read this form, or the researcher has read the form to me, and I have had all my questions answered. I understand why this study is taking place and I want to participate in this study.

I, _____, agree to participate in this research study.
Participant's printed name

_____
Your signature   Date

I know that I or my parent can contact the people below if I have any questions:

Vivica Kraak, PhD, RD
Principal Investigator and Assistant Professor
Department of Human Nutrition, Foods and Exercise
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Samantha Adas
Co-Investigator and MS Candidate
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Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact:

Virginia Tech Institutional Review Board
For the Protection of Human Subjects
Virginia Tech, Blacksburg, VA 24061
Email: irb@vt.edu; Phone: (540) 231-3732

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Teens Participating in Research that Involve Human Subjects

Project Title: *A Research Study that Explores the Views of Adolescents of Celebrity*
Endorsement of Beverage Brands and Products in Virginia

Principal Investigator:
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I. Purpose of this Research Project

The purpose of this study is to explore your view of celebrities who are paid to endorse beverage products or brands.

The information from this study may be used to encourage beverage companies and celebrities to market products and brands that support a healthy diet.

The results of this study will be published in a thesis.

The results of this study will also be summarized in research papers or presentations.

II. Procedures

If you agree to participate in this research study, you will be asked to:

1) Read and sign this form to tell us that you want to participate in this study;

2) Complete a questionnaire asking about your usual beverage intake (no more than 10 minutes to complete);

3) Answer a survey that includes questions about yourself and what celebrities you recognize and brand categories associated with them (no more than 20 minutes to complete);

4) Complete a sort of 48 pictures of celebrities in the order of celebrities you believe are "most credible" to the celebrities you believe are "most *in*credible" (no more than 30 minutes to complete) and;

5) Answer 6 questions in a post card-sort questionnaire about the activities you just completed (no more than 30 minutes to complete).

III. Risks

There are very few dangers, or risks, associated with your participation in this study. Your answers to the short questions in the beginning of the study will ask you some basic information about you including your age, race/ethnicity, grade in school, and gender.

Then the researcher will ask you if you want to continue with the other activities of the study. The study been reviewed and approved by the Virginia Tech Institutional Review Board. You do not have to participate in this study and you may choose to quit any part of the study at any time.

IV. Benefits

There are no direct benefits for you to be involved in the study other than to share your beliefs, knowledge, and attitudes of the of the celebrity endorsement used in the study. The information from the research study may have societal benefits by informing future policies, programs and campaigns to promote healthy beverages to teens.

V. Compensation

You will receive a $10.00 Walmart gift card after the study has ended. If you choose to end the study early, or choose to not take part in certain parts of the study you will still receive the $10.00 Walmart gift card.

VI. Extent of Anonymity and Confidentiality

All of the identifiable information taken from the activities you complete will be kept secret at all times and will be know to only the research team. This form will be stored separately from your beverage questionnaire including demographic questions, celebrity familiarity survey, card-sort responses, and post card-sort questionnaire. Only trained researchers involved in this study will have access to identifiable information that may help recognize you.

VII. Freedom to Withdraw

You do not have to participate in this study and you are free to quit at any time. You do not have to answer all of the questions or questions you are not comfortable with. There will

be no consequences if you choose to not answer a question or decide to withdraw before the study is complete.

VIII. Subject's Consent

I have read this form, or the researcher has read the form to me, and I have had all my questions answered. I understand why this study is taking place and I want to participate in this study.

I, _____, agree to participate in this research study and am 18 years of age.

_____
Your signature   **Date**

I know that I can contact the people below if I have any questions:

Vivica Kraak, PhD, RD
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Email: sadas16@vt.edu; Phone: (571) 217-6515

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact:

Virginia Tech Institutional Review Board
For the Protection of Human Subjects
Virginia Tech, Blacksburg, VA 24061
Email: irb@vt.edu; Phone: (540) 231-3732

Appendix C: Consent Form for Parents of Adolescents 17 and Under
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Parents of Teens Participating in Research that Involve Human Subjects

Project Title: *A Research Study that Explores the Views of Adolescents of Celebrity Endorsement of Beverage Brands and Products in Virginia*

Principal Investigator:
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I. Purpose of this Research Project

The purpose of this study is to explore your child's view of celebrities who are paid to endorse beverage products or brands.

The information from this study may be used to encourage beverage companies and celebrities to market products and brands that support a healthy diet.

The results of this study will be published in a thesis.

The results of this study will also be summarized in research papers or presentations.

II. Procedures

If you agree to allow your child to participate in this research study, they will be asked to:

1) Read and sign this form to tell us that you allow them to participate in this study;

2) Complete a questionnaire asking about their usual beverage intake (no more 10 minutes to complete);

3) Answer a survey that includes questions about themself and what celebrities they recognize and brand categories associated with them (no more than 20 minutes to complete);

4) Complete a sort of 48 pictures of celebrities in the order of celebrities they believe are "most credible" to the celebrities they believe are "most *in*credible" (no more than 30 minutes to complete) and;

5) Answer 6 questions in a post card-sort questionnaire asking about the activities they just completed. (no more than 30 minutes to complete).

III. Risks

There are very few dangers, or risks, associated with your child's participation in this study. Your child's answers to the short questions in the beginning of the study will ask some basic information about them including your age, race/ethnicity, grade in school, and gender.

Then the researcher will ask you if they want to continue with the other activities of the study. The study has been reviewed and approved by the Virginia Tech Institutional Review Board. Your child does not have to participate in this study and may choose to quit any part of the study at any time.

IV. Benefits

There are no direct benefits for your child to be involved in the study other than to share his or her beliefs, knowledge, and attitudes of the of the celebrity endorsement used in the study. The information from the research study may have societal benefits by informing future policies, programs and campaigns to promote healthy beverages to teens.

V. Compensation

Your child will receive a $10.00 Walmart gift card after the study has ended. If you choose to end the study early, or choose to not take part in certain parts of the study you will still receive the $10.00 Walmart gift card.

VI. Extent of Anonymity and Confidentiality

All of the identifiable information from the activities your child completes will be kept secret at all times and will be known to only the research team. This form will be stored separately from your child's beverage questionnaire including demographic questions, celebrity familiarity survey, card-sort responses, and post card-sort questionnaire. Only trained researchers involved in this study will have access to identifiable information that may help recognize your child.

VII. Freedom to Withdraw

Your child does not have to participate in this study and they are free to quit at any time. They do not have to answer all of the questions or questions your child is not comfortable with. There will be no consequences if they choose to not answer a question or decide to withdraw before the study is complete.

VIII. Parental Consent

I have read this form, and I have had all my questions answered. I understand why this study is taking place and I allow my child to participate in this study.

I give permission for my child, _____, to be in this research study.

_____
Your signature   Date

I know that I can contact the people below if I have any questions:

Vivica Kraak, PhD, RD
Principal Investigator and Assistant Professor
Department of Human Nutrition, Foods and Exercise
223 Wallace Hall
295 West Campus Drive
Virginia Tech, Blacksburg, VA 24061
Email: vivica51@vt.edu; Phone: (540) 231-9638

Samantha Adas
Co-Investigator and MS Candidate
Department of Human Nutrition, Foods and Exercise
Virginia Tech, Blacksburg, VA 24061
Email: sadas16@vt.edu; Phone: (571) 217-6515

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact:

Virginia Tech Institutional Review Board
For the Protection of Human Subjects
Virginia Tech, Blacksburg, VA 24061
Email: irb@vt.edu; Phone: (540) 231-3732

Appendix D: In Person Minor Compensation Statement

Minor Compensation Statement for Parents

What did my teen participate in?

Your teen participated in a study comprised of four activities, which included a demographic questions included in a celebrity familiarity survey, a beverage questionnaire, a card-sort, and a post card-sort survey. The goal of these activities is to compare adolescent beverage consumption with expert recommendations as well as adolescent perspectives on celebrity beverage endorsements. Your teen qualifies for the study because he or she is between the ages of 14-18 and is in the Loudoun County, Northern Virginia area.

What information was collected?

The study was comprised of four activities, which included a demographic responses as well as data related to the celebrity familiarity survey, beverage questionnaire, card-sort, and a post card-sort survey. All responses will be kept confidential.

Are there any risks involved with this study?

Participating in this study has little to no risk. Your teen was invited to take our survey but assured by a research that participation was completely voluntary and that he or she could end participation at any time. This information on voluntary participation and withdrawal from the study was also explained in the assent form that was at the beginning of the study.

How much money did my teen receive?

After participating in the study, we gave a $10 Walmart gift card to your teen. Your teen was asked to sign a form saying that they had received the gift card for taking the survey. Only their signature and date were on the form. The form does not connect their signature to their survey response.

Survey was completed on _____ at _____

If you have any questions or comments please contact any of the individuals below

Samantha Adas
M.S. Student
Department of Human Nutrition, Foods and Exercise
Phone: (571) 217-6515
Email: sadas16@vt.du

Vivica Kraak, PhD, RD
Assistant Professor
Department of Human Nutrition, Foods and Exercise
223 Wallace Hall, Virginia Tech, Blacksburg, VA 24061
Phone: (540) 231-9638

Email: vivca51@vt.edu

Should I have any questions or concerns about the study's conduct or my child's rights as a research subject or need to report a research-related injury or event, I may contact:

Virginia Tech Institutional Review Board
For the Protection of Human Subjects
Virginia Tech, Blacksburg, VA 24061
Email: irb@vt.edu; Phone: (540) 231-3732

A Research Study that Explores the Views of Adolescents on Celebrity Endorsement of Beverage Brands and Products in Virginia

We want to learn about your views regarding celebrity endorsements that are used to promote beverage brands and products. If you are between the ages of 14 and 18 years old and live in Loudoun County, northern Virginia you are eligible to participate in this study, which will be conducted by researchers from Virginia Tech. Participation is completely voluntary and all identifiable information will be kept confidential. Participation in the study will take place in person in Virginia.

This study involves participating in four activities:
1. A 15-item beverage questionnaire
2. A celebrity familiarity survey including demographic information
3. An image card sort
4. A 6-item post card-sort questionnaire

All activities will take no more than 90 minutes to complete in total. You will receive a $10 Walmart gift card as compensation for participation in the study activities.

If you would like to participate in this study, please contact the Research Coordinator, Virginia Tech graduate student, Samantha Adas at:
Email: sadas16@vt.edu or Phone: (571) 217-6515
We look forward to hearing from you soon!

A Research Study that Explores the Views of Adolescents of Celebrity Endorsement of Beverage Brands and Products in Virginia

Master List of Study Activities
December 6, 2017

Samantha Adas, MS Candidate
Email:Sadas16@vt.edu
Phone: 571-217-6515

Activity 1: BEVQ-15
Activity 2: Celebrity Familiarity Survey
Activity 3: Card Sort Instructions
Activity 3b: Celebrity Card Images
Activity 3c: Score sheet
Activity 4: Post Card-Sort Questionnaire

Beverage Questionnaire (BEVQ-15)

Participant ID: _____

Date: _____

Instructions:

For the past month, please indicate your intake for each beverage type by marking an "X" in the bubble for "how often" and "how much each time".

1. Indicate how often you drank the following beverages, for example, if you drank 5 glasses of water per week, mark 4-6 times per week.
2. Indicate the approximate amount of beverage you drank each time, for example, if you drank 1 cup of water each time, mark 1 cup under "how much each time". If applicable, indicate the specific type of beverage by marking an "X" in the bubble by the one used (i.e., type of nut milk).
3. When trying to estimate your intake throughout the day, (i.e., water) think about the total amount you drink. For example, 3 times per day and 20 fl oz each time = 60 fl oz per day. **If you consume more 60 fl oz per day select "1 time per day" and write the TOTAL daily amount in the last column.**
4. Do not count beverages used in cooking or other preparations, such as milk in cereal.
5. Count milk/creamer added to tea and coffee in the tea or coffee with creamer beverage category, NOT in the milk categories; this includes non-dairy creamer. Please indicate the type of creamer (flavored, plain or sugar-free) and sweetener used by marking an "X" in the bubble by the one used, if applicable.

Type of Beverage	HOW OFTEN (MARK ONE)							HOW MUCH EACH TIME (MARK ONE)					
	Never or less than 1 time per week (go to next beverage)	1 time per week	2-3 times per week	4-6 times per week	1 time per day	2 times per day	3+ times per day	Less than 6 fl oz (¾ cup)	8 fl oz (1 cup)	12 fl oz (1½ cups)	16 fl oz (2 cups)	20 fl oz (2½ cups)	> 20 fl oz (specify TOTAL daily amount)
Water or unsweetened sparkling water	O	O	O	O	O	O	O	O	O	O	O	O	_____
100% Fruit Juice	O	O	O	O	O	O	O	O	O	O	O	O	_____
Sweetened Juice Beverage/Drink (fruit punch, juice cocktail, Sunny Delight, Capri Sun)	O	O	O	O	O	O	O	O	O	O	O	O	_____
Whole Milk: red cap, Reduced Fat Milk 2%: purple cap, or Chocolate Milk	O	O	O	O	O	O	O	O	O	O	O	O	_____
Low Fat 1%: green cap, Fat Free/Skim Milk: light blue cap, Buttermilk or Soy Milk	O	O	O	O	O	O	O	O	O	O	O	O	_____
Nut Milk (almond, cashew, coconut) O Flavored, Original, or Plain O Unsweetened	O	O	O	O	O	O	O	O	O	O	O	O	_____
Soft Drinks, Regular	O	O	O	O	O	O	O	O	O	O	O	O	_____
Energy & Sports Drinks, Regular (Red Bull, Gatorade, Powerade)	O	O	O	O	O	O	O	O	O	O	O	O	_____
Diet or Artificially Sweetened Soft Drinks, Energy & Sports Drinks (Diet Coke, Crystal Light, artificially sweetened sparkling water, Sugar-Free or Total Zero Red Bull, Powerade Zero)	O	O	O	O	O	O	O	O	O	O	O	O	_____
Sweet Tea (with sugar)	O	O	O	O	O	O	O	O	O	O	O	O	_____
Tea or Coffee, black (no creamer or milk) O Sugar, O Artificial Sweetener, O N/A	O	O	O	O	O	O	O	O	O	O	O	O	_____
Tea or Coffee (w/ milk &/or creamer) O Sugar O Artificial Sweetener O N/A Milk &/or Creamer: O Milk O Half & Half or Cream O N/A Creamer: O Flav. O Plain O Sugar-Free	O	O	O	O	O	O	O	O	O	O	O	O	
Wine (red or white)	O	O	O	O	O	O	O	O	O	O	O	O	_____
Hard Liquor (vodka, rum, tequila, etc.)	O	O	O	O	O	O	O	O	O	O	O	O	_____
Beer, Ales, Wine Coolers, Non-alcoholic or Light Beer	O	O	O	O	O	O	O	O	O	O	O	O	_____
Other (list):_____	O	O	O	O	O	O	O	O	O	O	O	O	_____

Virginia Tech, 2016.

Appendix H: BEVQ Score Sheet

Scoring Sheet for Beverage Questionnaire-15

Subject ID: Date:

Type of Beverage	Avg kcal/fl oz	How Often per Day	How Much (fl oz)	Avg Daily fl oz	Avg Daily kcal	Avg g/fl oz	Avg Daily gms
Water or unsweetened sparkling water	0	0	0	0.00	0.00	29.63	0.00
100% Fruit Juice	17.67	0	0	0.00	0.00	30.83	0.00
Sweetened Juice Beverage/Drink (fruit punch, juice cocktail, Sunny Delight, Capri Sun)	14.3	0	0	0.00	0.00	30.68	0.00
Whole Milk: red cap, Reduced Fat Milk 2%: purple cap, or Chocolate Milk	19.8	0	0	0.00	0.00	30.50	0.00
Low Fat 1%: green cap, Fat Free/Skim Milk: light blue cap, Buttermilk or Soy Milk	12.1	0	0	0.00	0.00	30.48	0.00
Nut Milk (almond, cashew, coconut) O Flavored, Original, or Plain [0] 9.8 [0] O Unsweetened [0] 4.2 [0]	0	0	0	0.00	0.00	30.48	0.00
Soft Drinks, Regular	13.3	0	0	0.00	0.00	30.00	0.00
Energy & Sports Drinks, Regular (Red Bull, Gatorade, Powerade)	14	0	0	0.00	0.00	31.05	0.00
Diet or Artificially Sweetened Soft Drinks, Energy & Sports Drinks (Diet Coke, Crystal Light, artificially sweetened sparkling water, Sugar-Free or Total Zero Red Bull, Powerade Zero)	0.3	0	0	0.00	0.00	29.80	0.00
Sweet Tea (with sugar)	10	0	0	0.00	0.00	31.25	0.00
Tea or Coffee, black (no creamer or milk) O Sugar, [0] 5.0 [0] O Artificial Sweetener, [0] 0.69 [0] O N/A [0] 0.25 [0]	0	0	0	0.00	0.00	29.60	0.00
Tea or Coffee (with creamer) O Sugar [0] 5.0 [0] O Artificial Sweetener [0] 0.7 [0] O N/A [0] 0.25 [0] O Milk [0] 0.717 [0] O Half & Half or Cream [0] 2.5 [0] O N/A [0] 0.0 [0] Creamer: O Flavored [0] 6.125 [0] O Reg. [0] 3.313 [0] O Sugar-Free [0] 3.375 [0] O N/A [0] 0.0 [0]	0	0	0	0.00	0.00	29.50	0.00
Wine (red or white)	20.6	0	0	0.00	0.00	29.40	0.00
Hard Liquor (vodka, rum, tequila, etc.)	68.18	0	0	0.00	0.00	29.02	0.00
Beer, Ales, Wine Coolers, Non-alcoholic or Light Beer	10.3	0	0	0.00	0.00	29.78	0.00
Other (list):_____		0	0	0.00	0.00		0.00
Other (list):_____		0	0	0.00	0.00		0.00
Other (list):_____	0.00	0	0	0.00	0.00		0.00
Total Alcohol				0.00	0.00		0.00
Total Milk				0.00	0.00		0.00
Total Sugar Sweetened Beverages				0.00	0.00		0.00
Total Beverages				0.00	0.00		0.00

Appendix I: Activity 2: Celebrity Familiarity Survey

A Study of Your Views about Celebrity Endorsement of Beverage Product Categories

Activity 2: Celebrity Familiarity Survey

This is the first step in completing the study of your views about celebrity endorsement of beverage product categories. The purpose of this activity is to explore your familiarity with celebrities who may or are associated with various beverage product categories. This activity will take you about 20 minutes to complete.

These activities have been reviewed and approved by the Virginia Tech Institutional Review Board. If you have any questions related to these activities, please contact:

Samantha Adas
MS Candidate
Department of Human Nutrition, Foods and Exercise
Wallace Hall
Virginia Tech
Blacksburg, VA
Phone: (571) 217-6515 Email: sadas16@vt.edu

Please answer the five questions about yourself before you start the survey

Participant ID

Date

Write your age in the box below

[   ]

Select your current grade level in high school

○ Freshman

○ Sophomore

○ Junior

○ Senior

Indicate your sex

○ Male

○ Female

Indicate your race or ethnicity

○ American Indian or Alaskan Native

○ Asian

○ Black or African American

○ Hispanic or Latino

○ Native Hawaiian or Other Pacific Islander

○ White

○ Other

If you or your family participates in any of government food assistance programs, please
indicate all of the relevant programs listed below

○ Special Supplemental Program for Women, Infants and Children (WIC)

○ Supplemental Nutrition Assistance Program (SNAP)

○ Free or Reduced National School Breakfast or Lunch (SBP or NSLP)

○ Child and Adult Care Food Program (CACFP)

○ Other [   ]

○ I prefer not to answer

○ Does not apply to me

Survey Instructions

This survey contains the names and photo images of 48 celebrities who are associated with different beverage product categories. Please write yes or no in the text box below the image if you are familiar with or recognize the celebrity. If yes, mark one or more beverage product categories you associate the celebrity to endorse. Thank you.

Please read these definitions before you start the survey.

Celebrity endorsement a promotional message made by a public figure (inclduing an entertainor, actor, musician or professional athelte) in the form of advertisements, verbal statements or showing other personal features that are associated with buying or consuming a comapny's food or beverage brands or products.

Sugar-sweetened beverages (SSBs) provide more than 60 calories per 12-ounce serving and include energy drinks (e.g., Red Bull), sports drinks (e.g., Gatorade), fruit juice drinks (e.g., Capri Sun or Sunny D) and carbonated soft drinks or sodas (e.g., Coca Cola or Pepsi)

Low/Mid-calorie beverages (LCB) provide less than 60 calories per 12-ounce serving (e.g., Vita Coco)
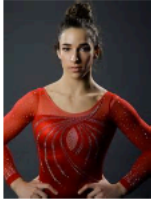
No-calorie beverages (NCB) provide 0 calories per 12-ounce serving (e.g., Diet Coke or Vitamin Water Zero)

Milk includes generic whole, low-fat or skim fluid milk (e.g., Borden or Got Milk?/Milk Mustache campaign)

Water includes either tap water or bottled branded water (e.g., Smartwater, Poland Spring)

Alcoholic beverages include beer, wine, spirits and mixed drinks that provide more than 60 calories per 4 to 12-ounce serving
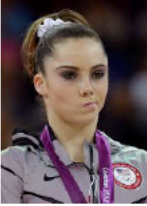
	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
1.	☐	☐	☐	☐	☐	☐	☐

110

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
2.	☐	☐	☐	☐	☐	☐	☐
3.	☐	☐	☐	☐	☐	☐	☐
4.	☐	☐	☐	☐	☐	☐	☐
5.	☐	☐	☐	☐	☐	☐	☐

111

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
6.	☐	☐	☐	☐	☐	☐	☐
7.	☐	☐	☐	☐	☐	☐	☐
8.	☐	☐	☐	☐	☐	☐	☐
9.	☐	☐	☐	☐	☐	☐	☐

112

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
10.	☐	☐	☐	☐	☐	☐	☐
11.	☐	☐	☐	☐	☐	☐	☐
12.	☐	☐	☐	☐	☐	☐	☐
13.	☐	☐	☐	☐	☐	☐	☐

113

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
14.	☐	☐	☐	☐	☐	☐	☐
15.	☐	☐	☐	☐	☐	☐	☐
16.	☐	☐	☐	☐	☐	☐	☐
17.	☐	☐	☐	☐	☐	☐	☐

114

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
18.	☐	☐	☐	☐	☐	☐	☐
19.	☐	☐	☐	☐	☐	☐	☐
20.	☐	☐	☐	☐	☐	☐	☐
21.	☐	☐	☐	☐	☐	☐	☐

115

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
22.	☐	☐	☐	☐	☐	☐	☐
23.	☐	☐	☐	☐	☐	☐	☐
24.	☐	☐	☐	☐	☐	☐	☐
25.	☐	☐	☐	☐	☐	☐	☐

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	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
26.	☐	☐	☐	☐	☐	☐	☐
27.	☐	☐	☐	☐	☐	☐	☐
28.	☐	☐	☐	☐	☐	☐	☐
29.	☐	☐	☐	☐	☐	☐	☐

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	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
30.	☐	☐	☐	☐	☐	☐	☐
31.	☐	☐	☐	☐	☐	☐	☐
32.	☐	☐	☐	☐	☐	☐	☐
33.	☐	☐	☐	☐	☐	☐	☐

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
34.	☐	☐	☐	☐	☐	☐	☐
35.	☐	☐	☐	☐	☐	☐	☐
36.	☐	☐	☐	☐	☐	☐	☐
37.	☐	☐	☐	☐	☐	☐	☐

119

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
38.	☐	☐	☐	☐	☐	☐	☐
39.	☐	☐	☐	☐	☐	☐	☐
40.	☐	☐	☐	☐	☐	☐	☐
41.	☐	☐	☐	☐	☐	☐	☐

120

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
42.	☐	☐	☐	☐	☐	☐	☐
43.	☐	☐	☐	☐	☐	☐	☐
44.	☐	☐	☐	☐	☐	☐	☐
45.	☐	☐	☐	☐	☐	☐	☐

121

	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category
46.	☐	☐	☐	☐	☐	☐	☐
47.	☐	☐	☐	☐	☐	☐	☐
48.	☐	☐	☐	☐	☐	☐	☐
	Sugar-sweetened beverage	Low/mid calorie beverage	No calorie beverage	Milk	Water	Alcohol	I don't know which product category

Powered by Qualtrics

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Appendix J: Activity 3A: Instructions for the Q Methodology Study
A Research Study that Explores the Views of Adolescents of Celebrity
Endorsement of Beverage Brands and Products in Virginia

Activity 3: Card-Sorting Instructions

A celebrity is a famous person recognized in a society who uses public recognition or the media to promote a brand, product or service in an advertisement or other marketing communication to influence sales, use or consumption. A celebrity may be a professional athlete, musician or public figure. This exercise will help us understand how you think about popular celebrities who partner with companies to endorse beverage brands and products. There is no one right or wrong answer. We want to understand your own point of view. The card-sorting activity should take no more than 30 minutes to complete.

You will be given 48 cards to review with photos of different celebrities. Each card has one photo and a name of a celebrity associated with a specific beverage brand or product. Look over all the cards before sorting the photos according to whether you believe the celebrity according to who you believe is "most credible" to the celebrities whom you believe are "most *in*credible" related to the beverage brand or product that the celebrity is associated with in the photo.

You will have a score sheet with 48 boxes and a distribution ranging from +4 (most credible) to -4 (most incredible). Place one image in each box until you have filled all 48 boxes. Feel free to ask the researcher if you have any questions

After you finish this activity, a researcher will ask you to complete a short 6-item questionnaire to share your thoughts about activities 1 through 3. The final activity 4 should take no more than 30 minutes to complete.

Key Terms Defined
- **Celebrity endorsement** is a promotional message made by a public figure (including an entertainer, actor, musician or professional athlete) in the form of advertisements, verbal statements or showing other personal features that are associated with buying or consuming a company's food or beverage brands or products. ***This study will focus only on celebrities associated with beverage brands and products.***

- **Celebrity credibility** involves whether you view an endorser in trustworthy, attractive or knowledgeable and may influence your attitudes and behaviors to choose, buy or consume a beverage brand or product.

    1. ***Celebrity trust*** involves whether you are confident that a celebrity conveys information honestly.
    2. ***Celebrity attractiveness*** involves whether you believe the celebrity is attractive or likeable.

3. ***Celebrity expertise*** involves whether a celebrity has the knowledge, skills or experience to convey information accurately.

Card-sorting Instructions

1. Place the 48 pictures of celebrities and sit at a table with the paper copy of a scoring grid. Each card has an image and name of a celebrity who endorses a beverage brand or product. The number on each card is random and does not mean anything special.

2. Flip through the 48 cards and sort them into three different piles:
- **Pile 1** for celebrities who you believe are **most credible** to endorse the beverage brand or product in the photo
- **Pile 2** for celebrities who you do not know or you have no views about their credibility to endorse the beverage brand or product in the photo
- **Pile 3** for celebrities who you believe are **most *in*credible** to endorse the beverage brand or product in the photo

3. Take the pile of cards with the **most credible** celebrities and select the top three who you believe are **most credible** to endorse the beverage brand or product that he or she represents in the image or photo. Place three cards under the +4 box on the right side of the board. Continue to sort your **most credible celebrities** by placing four images under the +3 box, six images under the +2 box, and 7 images under the +1 box until you have placed one card in each box on the right side of the board with the scoring sheet. You do not need to rank the cards in each column.

4. Take the pile of cards with the **most *in*credible celebrities** and select up to three whom you believe are **most *in*credible** to endorse the beverage brand or product that he or she represents on the image. Place three cards under the -4 box on the left side of the board. Continue to sort your **most *in*credible celebrities** by placing four images under the -3 box, six images under the -2 box, and 7 images under the -1 box until you have place one card in each box on the left side of the board with the scoring sheet. You do not need to rank the cards in each column.

5. Take the cards you have not yet sorted and look over them. These are the celebrities who you do not recognize or do not have strong views about whether you think they are credible or *in*credible for endorsing a specific beverage brand or product. Place eight cards in the 0 pile. Keep working until you have put an image in each box. You do not need to rank the cards in each column.

6. When you have placed one card with an image into each box on the board, look it over and you can change your mind and switch images until you feel content about how you have sorted the cards.

7. After you finish the card sort, please write down the random number on the bottom right-hand side of each card with the celebrity image on your score sheet. You should have a number in each of the 48 boxes. Afterwards, the researcher will ask you to complete a

questionnaire that should take about 30 minutes. After you finish, she will give you a $10.00 Walmart gift card for your participation in this study.

Thank you for completing activity 3.

Appendix K: Activity 3B: Celebrity Images

Alex Rodriguez 1	Aly Raisman 2	Cole Sprouse 3	David Beckham 4
George Clooney 5	John Legend 6	Justin Timberlake 7	Katy Perry 8
Michelle Kwan 9	Noah Syndergaard 10	Ryan Seacrest 11	Kendall Jenner 12
Jessica Alba 13	Ariana Grande 14	Joe Mauer 15	Stephen Curry 16

Robyn Rihanna Fenty 17	Sofia Vergara 18	Blake Griffin 19	Hugh Jackman 20
Tom Brady 21	Armando "Pitbull" Christian 22	Ellen Degeneres 23	Jennifer Aniston 24
Chrissy Teigen 25	LeBron James 26	Kevin Durant 27	Selena Gomez 28
Serena Williams 29	Carrie Underwood 30	Michelle Obama 31	Kim Kardashian 32

Neil Patrick Harris 33	Apolo Anton Ohno 34	Beyonce 35	Demi Lovato 36
Eva Longoria 37	McKayla Maroney 38	Nicki Minaj 39	Gabrielle Douglas 40
Darelle Revis 41	Troy Polamalu 42	Amar'e Stoudemire 43	Jordin Sparks 44
Taylor Swift 45	Pharrell Williams 46	Drake 47	Jay-Z 48

Appendix L: Activity 3C: Card Score Sheet

Most *Incredible* Celebrity ← ———— → **Most Credible Celebrity**

-4	-3	-2	-1	0	+1	+2	+3	+4
Sort 3 in this column	Sort 4 in this column	Sort 6 in this column	Sort 7 in this column		Sort 7 in this column	Sort 6 in this column	Sort 4 in this column	Sort 3 in this column

Appendix M: Activity 4: 6-Item Questionnaire
Activity 4: Post Celebrity Card-Sort Questionnaire
Study ID_____ Date_____

Thank you for completing the beverage questionnaire, celebrity familiarity survey, and card-sort activity. Please answer the questions below. There are no right or wrong answers. We want to learn your point of view about celebrity endorsement of beverage brands and products.

Celebrity Endorsement Questions
1. Explain why you sorted the celebrity photos in the "most credible" +4 pile.

2. Explain why you sorted the celebrity photos in the "most *inc*redible" -4 pile.

3. Explain why you sorted the celebrity photos under the zero column.

4. Write the names and card numbers for the top three celebrities in the card sort who you believe are a positive role model to help you follow a healthy lifestyle.

5. Describe the top five celebrities from the card sort who you have the strongest emotional connection to and why.

6. Circle your top three important features of celebrity credibility below that are important to you when you buy or consume a beverage.

dependable   qualified   likeability

experienced   similarity   honest

familiarity   reliable   knowledgeable

Thank you for completing this final activity. Please give the questionnaire to the researcher who will give you a gift card for completing all of the study activities.

Appendix N: Celebrities' Demographic Information

Celebrity	Age	Sex	Race/ethnicity	Occupation
Alba, Jessica	36	Female	Mixed	Entertainer
Aniston, Jennifer	48	Female	White	Entertainer
Beckham, David	42	Male	White	Athlete
Brady, Tom	40	Male	White	Athlete
Clooney, George	56	Male	White	Entertainer
Curry, Stephen	29	Male	Black	Athlete
DeGeneres, Ellen	59	Female	White	Entertainer
Drake	30	Male	Black	Entertainer
Douglas, Gabrielle	20	Female	Black	Athlete
Durant, Kevin	28	Male	Black	Athlete
Gomez, Selena	25	Female	Latin	Entertainer
Grande, Ariana	24	Female	Latin	Entertainer
Griffin, Blake	28	Male	Mixed	Athlete
Harris, Neil Patrick	44	Male	White	Entertainer
Jackman, Hugh	48	Male	White	Entertainer
James, Lebron	32	Male	Black	Athlete
Jay Z	47	Male	Black	Entertainer
Jenner, Kendall	21	Female	White	Entertainer
Kardashian, Kim	36	Female	Mixed	Entertainer
Knowles, Beyonce	36	Female	Black	Entertainer
Kwan, Michelle	37	Female	Asian	Athlete
Legend, John	38	Male	Black	Entertainer
Longoria, Eva	42	Female	Latin	Entertainer
Lovato, Demi	25	Female	Latin	Entertainer
Maroney, McKayla	21	Female	White	Athlete
Mauer, Joe	34	Male	White	Athlete
Minaj, Nicki	34	Female	Black	Entertainer
Obama, Michelle	53	Female	Black	Other
Ohno, Apolo Anton	35	Male	Asian	Athlete
Perry, Katy	42	Female	White	Entertainer
Pitbull	36	Male	Latin	Entertainer
Polamalu, Troy	36	Male	Asian	Athlete
Raisman, Aly	23	Female	White	Athlete
Revis, Darrelle	32	Male	Black	Athlete
Rihanna	29	Female	Black	Entertainer
Rodriguez, Alex	42	Male	Latin	Athlete
Seacrest, Ryan	42	Male	White	Entertainer
Syndergaard, Noah	25	Male	White	Athlete
Sparks, Jordin	27	Female	Black	Entertainer
Sprouse, Cole	25	Male	White	Entertainer
Stoudemire, Amar'e	34	Male	Black	Athlete
Swift, Taylor	27	Female	White	Entertainer

Tiegan, Chrissy	31	Female	Mixed	Entertainer
Timberlake, Justin	40	Male	White	Entertainer
Underwood, Carrie	34	Female	White	Entertainer
Vergara, Sofia	45	Female	Latin	Entertainer
Williams, Pharell	44	Male	Black	Entertainer
Williams, Serena	35	Female	Black	Athlete

Appendix O: Celebrities' Associated Beverage Endorsements

Name	Beverage Endorsement(s)
Rodriguez, Alex	LCB-Vita Coco, Vita Coco
Raisman, Aly	Water-Poland Spring, Nestle
Sprouse, Cole	Milk-GotMilk, MilkPEP
Beckham, David	Alcohol-Heig Club, Heig Club Distillary
Beckham, David	Milk-GotMilk, MilkPEP
Beckham, David	SSB-Pepsi, PepsiCo
Clooney, George	Alcohol-Casamigos Tequila
Legend, John	Water-DrinkUp, PHA
Timberlake, Justin	Alcohol-Sauza 901, Sauza Tequila Import Company
Perry, Katy	SSB-Pepsi, PepsiCo
Kwan, Michelle	Milk-GotMilk, MilkPEP
Syndergaard, Noah	Milk-MuscleMilk,CytoSport
Seacrest, Ryan	SSB-Coca Cola, TCCC
Jenner, Kendall	SSB-Pepsi, PepsiCo
Alba, Jessica	LCB-Zico, TCCC
Alba, Jessica	Milk-GotMilk, MilkPEP
Grande, Ariana	Water-Wat-AAH!
Mauer, Joe	SSB-Pepsi, PepsiCo
Curry, Stephen	Milk-MuscleMilk,CytoSport
Curry, Stephen	Water-Brita
Curry, Stephen	SSB-CapriSun, Kraft Foods Group Inc.
Rihanna	Milk-GotMilk, MilkPEP
Rihanna	LCB-Vita Coco, Vita Coco
Vergara, Sofia	NCB-Diet Pepsi, PepsiCo
Griffin, Blake	SSB-Red Bull, Red Bull GmbH
Jackman, Hugh	SSB-Lipton Tea, Unilever
Jackman, Hugh	Milk-GotMilk, MilkPEP
Brady, Tom	Water-SmartWater, TCCC
Brady, Tom	Milk-GotMilk, MilkPEP
Pitbull	SSB-Dr.Pepper, Dr.Pepper Snapple Group
DeGeneres, Ellen	NCB-VitaminWater ZERO, TCCC
Aniston, Jennifer	Water-SmartWater, TCCC
Aniston, Jennifer	Milk-GotMilk, MilkPEP

Tiegan, Chrissy	Water-Aquafina, TCCC and DrinkUP, PHA
Tiegan, Chrissy	Alcohol-Smirnoff, Diageo
James, Lebron	SSB-Sprite, Powerade and Vitamin Water, TCCC
Durant, Kevin	SSB-Gatorade, PepsiCo
Durant, Kevin	NCB-Sparking ICE, Talking Rain Company
Gomez, Selena	SSB-Coca Cola, TCCC
Gomez, Selena	Milk-Borden Milk
Williams, Serena	SSB-Gatorade and Pepsi, PepsiCo
Williams, Serena	Milk-GotMilk, MilkPEP
Underwood, Carrie	Milk-GotMilk, MilkPEP
Underwood, Carrie	NCB-VitaminWater ZERO, TCCC
Obama, Michelle	Water-DrinkUp, PHA
Kardashian, Kim	Alcohol-Midori, Suntory
Harris, Neil Patrick	Alcohol-Heineken
Ohno, Apolo Anton	SSB-Coca Cola, TCCC
Ohno, Apolo Anton	Milk-GotMilk, MilkPEP
Knowles, Beyonce	Milk-GotMilk, MilkPEP
Knowles, Beyonce	SSB-Pepsi, PepsiCo
Lovato, Demi	Milk-GotMilk, MilkPEP
Longoria, Eva	LCB-PepsiMax, PepsiCo
Maroney, McKayla	LCB-7Up10, Dr. Pepper Snapple Group
Minaj, Nicki	SSB-Pepsi, PepsiCo
Minaj, Nicki	Milk-Milk, Kemps, Dairy Farmers of America Inc.
Douglas, Gabrielle	SSB-CapriSun, Kraft Foods Group Inc.
Revis, Darrelle	NCB-Steaz Organic Green Tea, The Honest Company
Polamalu, Troy	NCB-Coke Zero, TCCC
Stoudemire, Amar'e	LCB-Zico, TCCC
Sparks, Jordin	Milk-GotMilk, MilkPEP
Swift, Taylor	Milk-GotMilk, MilkPEP

Swift, Taylor	NCB-Diet Coke,TCCC
Williams, Pharell	Alcohol-Smirnoff, Diageo
Drake	SSB-Sprite, TCCC
Jay Z	Alcohol-D'usse,D'usse and Budweiser, Ahneuser-Busch InBev

Appendix P: Correlation Matrix

Correlation Matrix Between Sorts

SORTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1 P1	100	56	52	57	50	21	48	49	40	27	50	26	-4	-5	25	1	29	3	15	-9	14	17	10	-12	16	29	39	17
2 P2	56	100	49	63	26	24	51	20	14	20	31	22	-4	0	30	13	35	24	38	1	2	21	19	4	23	32	37	28
3 P3	52	49	100	67	27	-3	52	31	31	39	68	30	9	-18	-5	-21	16	-3	3	8	20	16	-4	-10	-1	48	49	6
4 P4	57	63	67	100	30	5	52	33	30	24	47	37	-3	5	22	-3	27	31	23	2	25	27	23	0	21	44	57	20
5 P5	50	26	27	30	100	-3	19	43	48	32	33	39	5	10	15	21	14	11	37	6	41	25	17	9	39	32	22	13
6 P6	21	24	-3	5	-3	100	35	23	33	30	-21	3	-1	35	43	33	36	28	44	23	16	8	14	-10	9	-18	19	27
7 P7	48	51	52	52	19	35	100	27	35	30	34	29	2	26	19	20	41	36	33	8	12	13	9	0	8	36	60	42
8 P8	49	20	31	33	43	23	27	100	42	34	20	11	2	14	20	-3	4	10	28	26	50	25	21	2	3	10	32	14
9 P9	40	14	31	30	48	33	35	42	100	31	23	18	-7	23	42	36	31	19	33	3	40	37	16	7	11	17	43	15
10 P10	27	20	39	24	32	30	30	34	31	100	20	3	3	24	25	12	26	10	25	21	23	3	11	12	16	18	26	20
11 P11	50	31	68	47	33	-21	34	20	23	20	100	47	-10	-38	-31	-35	-4	-26	-20	-23	10	7	0	2	-19	47	43	-9
12 P12	26	22	30	37	39	3	29	11	18	3	47	100	-4	-3	-23	-13	15	31	17	-17	37	-7	3	25	7	21	23	14
13 P13	-4	-4	9	-3	5	-1	2	2	-7	3	-10	-4	100	-2	3	-1	-13	8	3	13	13	-17	-13	-35	5	-10	-11	-4
14 P14	-5	0	-18	5	10	35	26	14	23	24	-38	-3	-2	100	48	56	43	47	46	16	22	13	31	14	29	-20	3	34
15 P15	25	30	-5	22	15	43	19	20	42	25	-31	-23	3	48	100	50	30	40	50	9	8	19	34	7	45	-10	17	40
16 P16	1	13	-21	-3	21	33	20	-3	36	12	-35	-13	-1	56	50	100	43	30	57	32	16	34	19	21	29	-1	13	25
17 P17	29	35	16	27	14	36	41	4	31	26	-4	15	-13	43	30	43	100	23	37	14	18	24	24	0	14	4	23	41
18 P18	3	24	-3	31	11	28	36	10	19	10	-26	31	8	47	40	30	23	100	50	11	11	-1	15	23	42	11	23	39
19 P19	15	38	3	23	37	44	33	28	33	25	-20	17	3	46	50	57	37	50	100	37	29	38	45	23	42	15	29	60
20 P20	-9	1	8	2	6	23	8	26	3	21	-23	-17	13	16	9	32	14	11	37	100	15	28	1	-8	4	-2	7	13
21 P21	14	2	20	25	41	16	12	50	40	23	10	37	13	22	8	16	18	11	29	15	100	39	18	13	13	10	32	15
22 P22	17	21	16	27	25	8	13	25	37	3	7	-7	-17	13	19	34	24	-1	38	28	39	100	33	-16	31	31	32	33
23 P23	10	19	-4	23	17	14	9	21	16	11	0	3	-13	31	34	19	24	15	45	1	18	33	100	9	22	20	23	27
24 P24	-12	4	-10	0	9	-10	0	2	7	12	2	25	-35	14	7	21	0	23	23	-8	13	-16	9	100	-2	-7	14	-10
25 P25	16	23	-1	21	39	9	8	3	11	16	-19	7	5	29	45	29	14	42	42	4	13	31	22	-2	100	17	14	34
26 P26	29	32	48	44	32	-18	36	10	17	18	47	21	-10	-20	-10	-1	4	11	15	-2	10	31	20	-7	17	100	47	23
27 P27	39	37	49	57	22	19	60	32	43	26	43	23	-11	3	17	13	23	23	29	7	32	32	23	14	14	47	100	35
28 P28	17	28	6	20	13	27	42	14	15	20	-9	14	-4	34	40	25	41	39	60	13	15	33	27	-10	34	23	35	100

Appendix Q: Factor Solutions

3 Factor Solution: 27 participants and 38% variance

```
QSORT                    1            2            3

  1  P1            0.7133X      0.0464       0.0162
  2  P2            0.5621X      0.2785      -0.0598
  3  P3            0.7812X     -0.2150       0.0056
  4  P4            0.7398X      0.1345       0.0853
  5  P5            0.5681X      0.1850       0.0386
  6  P6            0.0614       0.4636X      0.1796
  7  P7            0.5377X      0.2980       0.2831
  8  P8            0.4991X      0.1684       0.0676
  9  P9            0.4473X      0.3319       0.2928
 10  P10           0.3836X      0.2494       0.1058
 11  P11           0.7253X     -0.5820       0.1475
 12  P12           0.3815      -0.0981       0.4221X
 13  P13          -0.0280      -0.0089      -0.1331
 14  P14          -0.1248       0.6669X      0.2403
 15  P15           0.0874       0.6741X     -0.0432
 16  P16          -0.0786       0.6831X      0.1447
 17  P17           0.2165       0.4838X      0.2475
 18  P18           0.1082       0.4920X      0.2304
 19  P19           0.2667       0.8200X      0.0055
 20  P20           0.0113       0.3108X     -0.1070
 21  P21           0.3460X      0.2470       0.1338
 22  P22           0.3423       0.3720X     -0.1187
 23  P23           0.2109       0.3958X     -0.0411
 24  P24          -0.0269       0.0378       0.4632X
 25  P25           0.1869       0.4766X     -0.2152
 26  P26           0.5616X     -0.0160      -0.1023
 27  P27           0.6349X      0.1977       0.2509
 28  P28           0.2148       0.5849X     -0.0073

% expl.Var.            18           16            4
```

4 Factor Solution: 23 participants and 42% variance

QSORT	1	2	3	4
1 P1	0.0231	0.6109X	0.3709	0.0108
2 P2	0.2637	0.5955X	0.1100	-0.0876
3 P3	-0.2384	0.7004X	0.3347	0.0057
4 P4	0.1189	0.7352X	0.2160	0.0639
5 P5	0.1521	0.2418	0.7277X	0.0596
6 P6	0.4653X	0.0209	0.1191	0.1662
7 P7	0.2986	0.5984X	0.0630	0.2524
8 P8	0.1428	0.2460	0.5823X	0.0817
9 P9	0.3228	0.3072	0.3876	0.2882
10 P10	0.2357	0.2578	0.3374	0.1035
11 P11	-0.5962	0.6683	0.2570	0.1600
12 P12	-0.0940	0.3319	0.1878	0.4240X
13 P13	-0.0200	-0.1365	0.1770	-0.1188
14 P14	0.6766X	-0.1390	0.0380	0.2205
15 P15	0.6647X	0.0253	0.1737	-0.0628
16 P16	0.6885X	-0.0846	0.0359	0.1220
17 P17	0.4912X	0.2889	-0.0318	0.2158
18 P18	0.4945X	0.0680	0.1338	0.2150
19 P19	0.8071X	0.1945	0.2492	-0.0223
20 P20	0.3035X	-0.0243	0.0829	-0.1147
21 P21	0.2313	0.1551	0.4399X	0.1408
22 P22	0.3592	0.3605	0.0826	-0.1431
23 P23	0.3887X	0.2218	0.0626	-0.0623
24 P24	0.0538	-0.0647	0.0673	0.4680X
25 P25	0.4574X	0.1033	0.2220	-0.2273
26 P26	-0.0286	0.6456X	0.0028	-0.1255
27 P27	0.1941	0.6820X	0.1054	0.2234
28 P28	0.5839X	0.3138	-0.0755	-0.0467
% expl.Var.	16	15	7	4

6 Factor Solution: 23 participants and 58% variance

QSORT	1	2	3	4	5	6
1 P1	0.6838X	0.0350	0.0964	0.3007	-0.0530	-0.0248
2 P2	0.6246X	0.1603	0.3526	0.0041	0.0449	-0.0119
3 P3	0.8045X	-0.1022	-0.1245	0.2760	-0.0296	-0.0505
4 P4	0.7487X	0.0858	0.1791	0.1666	0.1024	0.0797
5 P5	0.2264	-0.0754	0.3490	0.6597X	-0.0415	0.2252
6 P6	0.1035	0.6094X	0.0240	0.1849	-0.1088	-0.1071
7 P7	0.6446X	0.4208	0.0488	0.0847	0.0637	0.0837
8 P8	0.2565	0.1128	0.0432	0.6381X	-0.0321	-0.0413
9 P9	0.2528	0.3611	-0.0386	0.5668X	0.1518	0.0432
10 P10	0.2719	0.2253	0.0867	0.3739X	-0.0203	-0.0236
11 P11	0.7334X	-0.4004	-0.3194	0.2085	0.1046	0.2610
12 P12	0.3415	-0.0769	0.0759	0.0984	0.0493	0.6387X
13 P13	-0.0218	-0.0018	0.0395	0.0735	-0.3016X	-0.1537
14 P14	-0.1365	0.6796X	0.2549	0.1055	0.0182	0.1086
15 P15	0.0421	0.5307X	0.4441	0.1567	-0.0400	-0.1012
16 P16	-0.1878	0.5982X	0.2582	0.2017	0.2327	0.0092
17 P17	0.2814	0.5495X	0.1216	0.0503	0.1140	0.0380
18 P18	0.1363	0.4205	0.4356	-0.0004	-0.1376	0.3348
19 P19	0.0550	0.4573	0.6702X	0.2921	0.2613	0.0979
20 P20	-0.0661	0.2743	0.0490	0.2062	0.1032	-0.2768
21 P21	0.0782	0.1328	0.0962	0.5516X	0.1262	0.0723
22 P22	0.1053	0.1190	0.1930	0.3334	0.6010X	-0.1627
23 P23	0.0784	0.1561	0.3414	0.1373	0.3017	0.0162
24 P24	-0.1210	0.0739	0.0056	0.1016	0.1269	0.5998X
25 P25	0.0784	0.1482	0.6091X	0.1032	0.0060	-0.0042
26 P26	0.5054	-0.1998	0.1763	0.0378	0.4293	0.0516
27 P27	0.5640X	0.1711	0.0352	0.2443	0.3806	0.1416
28 P28	0.2368	0.4336	0.3957	-0.0330	0.2339	-0.0493
% expl.Var.	15	11	8	8	4	4

Appendix R: Factor Arrays

```
Factor Q-Sort Values for Each Statement
```

			Factor Arrays		
No.	Statement	No.	1	2	3
1	Rodriguez, Alex	1	-1	0	-1
2	Raisman, Aly	2	0	0	0
3	Sprouse, Cole	3	2	-1	4
4	Beckham, David	4	0	4	2
5	Clooney, George	5	1	0	1
6	Legend, John	6	2	1	-2
7	Timberlake, Justin	7	1	1	-1
8	Perry, Katy	8	3	-3	-1
9	Kwan, Michelle	9	-2	2	-2
10	Syndergard, Noah	10	-4	1	0
11	Seacrest, Ryan	11	0	0	-4
12	Jenner, Kendall	12	-2	-3	3
13	Alba, Jessica	13	-1	1	2
14	Grande, Arianna	14	2	-1	3
15	Mauer, Joe	15	-3	2	-3
16	Curry, Stephen	16	1	3	1
17	Rihanna	17	2	-2	-2
18	Vergara, Sophia	18	0	-1	0
19	Griffin, Blake	19	-2	2	-3
20	Jackman, Hugh	20	0	1	4
21	Brady, Tom	21	0	1	3
22	Pitbull	22	-1	-3	-4
23	Degeneres, Ellen	23	4	3	1
24	Aniston, Jennifer	24	2	0	0
25	Tiegan, Chrissy	25	-1	-2	2
26	James, Lebron	26	1	3	1
27	Durant, Kevin	27	-1	2	-3
28	Gomez, Selena	28	3	-2	-2
29	Williams, Serena	29	1	4	4
30	Underwood, Carrie	30	3	1	-1
31	Obama, Michelle	31	4	4	2
32	Kardashian, Kim	32	-4	-4	0
33	Harris, Neil Patrick	33	1	0	2
34	Ohno, Apollo Anton	34	-3	2	-3
35	Knowles, Beyonce	35	4	0	3
36	Lovato, Demi	36	2	-2	-2
37	Longoria, Eva	37	-2	-1	-2
38	Maroney, Mckayla	38	-3	0	-1
39	Minaj, Nicki	39	-2	-4	1
40	Douglas, Gabrielle	40	1	3	-4
41	Revis, Darell	41	-3	-1	0
42	Polamalu, Troy	42	-2	2	1
43	Stoudemire, Amare	43	-4	-1	-2
44	Sparks, Jordin	44	-1	-1	0
45	Swift, Taylor	45	3	-4	1
46	Williams, Pharrell	46	0	-2	0
47	Drake	47	0	-2	-1
48	Jay-Z	48	-1	-3	1

Factor 1 Crib Sheet

Items Ranked at +4
- Ellen DeGeneres
- Michelle Obama
- Beyonce

Items Ranked Higher in Factor 1 Array Than All Others
- Aly Raisman 0 (ranked 0 in all Factors)
- George Clooney +1 (also ranked +1 in Factor 3)
- John Legend +2
- Justin Timberlake +1 (also ranked +1 in Factor 2)
- Katy Perry +3
- Ryan Seacrest 0 (also ranked 0 in Factor 2)
- Rihanna 2
- Sofia Vergara 0 (also ranked 0 in Factor 3)
- Pitbull -1
- Jennifer Aniston +2
- Selena Gomez +3
- Carrie Underwood +3
- Demi Lovato +2
- Taylor Swift +3
- Pharrell Williams 0 (also ranked 0 in Factor 3)
- Drake 0

Items Ranked Lower in Factor 1 Array Than All Others
- Alex Rodriguez -1 (also ranked -1 in Factor 3)
- David Beckham 0
- Michelle Kwan -2 (also ranked -2 in Factor 3)
- Jessica Alba -1
- Joe Mauer -3 (also ranked -3 in Factor 3)
- Stephen Curry +1 (also ranked 1 in Factor 3)
- Hugh Jackman 0
- Tom Brady 0
- Lebron James +1 (also ranked 1 in Factor 3)
- Serena Williams +1
- Apollo Anton Ohno -3 (also ranked -3 in Factor 3)
- Eva Longoria -2 (also ranked -2 in Factor 3)
- McKayla Maroney -3
- Darell Revis -3
- Troy Polamalu -2

- Jodrin Sparks -1 (also ranked -1 in Factor 2)

Items Ranked at -4
- Noah Syndergard
- Kim Kardashian
- Amare Stoudemire

Factor 2 Crib Sheet

Items Ranked at +4
- David Beckham
- Serena Williams
- Michelle Obama

Items Ranked Higher in Factor 2 Array Than All Others
- Alex Rodriguez 0
- Aly Raisman 0 (ranked 0 in all Factors)
- Justin Timberlake +1 (also ranked +1 in Factor 1)
- Michelle Kwan +2
- Noah Syndergard +1
- Ryan Seacrest 0 (also ranked 0 in Factor 1)
- Joe Mauer +2
- Stephen Curry +3
- Blake Griffin +2
- Lebron James +3
- Kevin Durant +2
- Apollo Anton Ohno +2
- McKayla Maroney 0
- Gabrielle Douglas +3
- Troy Polamalu +2
-

Items Ranked Lower in Factor 2 Array Than All Others
- George Clooney 0
- Katy Perry -3
- Kendall Jenner -3
- Arianna Grande -1
- Rihanna -2 (also ranked -2 in Factor 3)
- Sofia Vergara- 1
- Jennifer Aniston 0 (also ranked 0 in Factor 3)
- Chrissy Tiegan -2
- Selena Gomez -2 (also ranked -2 in Factor 3)
- Beyonce 0
- Demi Lovato -2 (also ranked -2 in Factor 3)
- Jodrin Sparks -1 (also ranked -1 in Factor 1)

- Pharrell Williams -2
- Drake -2
- Jay-Z -3

Items Ranked at -4
- Kim Kardashian
- Nicki Minaj
- Taylor Swift

Factor 3 Crib Sheet

Items Ranked at +4
- Cole Sprouse
- Hugh Jackman

Items Ranked Higher in Factor 3 Array Than All Others
- Aly Raisman 0 (ranked 0 in all Factors)
- George Clooney +1 (also ranked +1 in Factor 1)
- Kendall Jenner +3
- Jessica Alba +2
- Arianna Grande +3
- Sofia Vergara 0 (also ranked 0 in Factor 1)
- Tom Brady +3
- Chrissy Tiegan +2
- Kim Kardashian 0
- Neil Patrick Harris +2
- Nicki Minaj +1
- Darrell Revis 0
- Jordin Sparks 0
- Pharrell Williams 0 (also ranked 0 in Factor 1)
- Jay-Z +1

Items Ranked Lower in Factor 2 Array Than All Others
- Alex Rodriguez -1 (also ranked -1 in Factor 3)
- John Legend -2
- Justin Timberlake -1
- Michelle Kwan -2 (also ranked -2 in Factor 1)
- Joe Mauer -3 (also ranked -3 in Factor 1)
- Stephen Curry 1 (also ranked 1 in Factor 3)
- Rihanna -2 (also ranked -2 in Factor 2)
- Blake Griffin -3
- Ellen DeGeneres +1
- Jennifer Aniston 0 (also ranked 0 in Factor 3)
- Chrissy Tiegan -2
- Lebron James +1 (also ranked 1 in Factor 1)

- Kevin Durant -3
- Selena Gomez -2 (also ranked -2 in Factor 2)
- Carrie Underwood -1
- Michelle Obama +2
- Apollo Anton Ohno -3 (also ranked -3 in Factor 1)
- Demi Lovato -2 (also ranked -2 in Factor 2)
- Eva Longoria -2 (also ranked -2 in Factor 1)

Items Ranked at -4
- Ryan Seacrest
- Pitbull
- Gabrielle Douglas

Appendix T: Z-Scores

```
Factor Scores -- For Factor     1

No.   Statement                                           No.      Z-SCORES

 31   Obama, Michelle                                      31        2.375
 23   Degeneres, Ellen                                     23        1.995
 35   Knowles, Beyonce                                     35        1.447
 28   Gomez, Selena                                        28        1.252
  8   Perry, Katy                                           8        1.091
 45   Swift, Taylor                                        45        1.071
 30   Underwood, Carrie                                    30        1.014
 17   Rihanna                                              17        0.996
 24   Aniston, Jennifer                                    24        0.996
  3   Sprouse, Cole                                         3        0.841
 36   Lovato, Demi                                         36        0.749
 14   Grande, Arianna                                      14        0.728
  6   Legend, John                                          6        0.715
  7   Timberlake, Justin                                    7        0.639
 26   James, Lebron                                        26        0.622
  5   Clooney, George                                       5        0.546
 40   Douglas, Gabrielle                                   40        0.432
 29   Williams, Serena                                     29        0.404
 16   Curry, Stephen                                       16        0.396
 33   Harris, Neil Patrick                                 33        0.382
  4   Beckham, David                                        4        0.261
 46   Williams, Pharrell                                   46        0.247
 47   Drake                                                47        0.227
 21   Brady, Tom                                           21        0.176
 18   Vergara, Sophia                                      18        0.120
 11   Seacrest, Ryan                                       11        0.114
 20   Jackman, Hugh                                        20        0.092
  2   Raisman, Aly                                          2       -0.094
 27   Durant, Kevin                                        27       -0.103
 25   Tiegan, Chrissy                                      25       -0.227
 44   Sparks, Jordin                                       44       -0.401
 13   Alba, Jessica                                        13       -0.524
 22   Pitbull                                              22       -0.533
 48   Jay-Z                                                48       -0.668
  1   Rodriguez, Alex                                       1       -0.725
 42   Polamalu, Troy                                       42       -0.745
 12   Jenner, Kendall                                      12       -0.988
  9   Kwan, Michelle                                        9       -1.012
 39   Minaj, Nicki                                         39       -1.103
 19   Griffin, Blake                                       19       -1.128
 37   Longoria, Eva                                        37       -1.155
 15   Mauer, Joe                                           15       -1.332
 34   Ohno, Apollo Anton                                   34       -1.425

 38   Maroney, Mckayla                                     38       -1.442
 41   Revis, Darell                                        41       -1.456
 10   Syndergard, Noah                                     10       -1.537
 32   Kardashian, Kim                                      32       -1.595
 43   Stoudemire, Amare                                    43       -1.737
```

Appendix U: Distinguishing Factors

```
Distinguishing Statements for Factor  1

 (P < .05 ;  Asterisk (*) Indicates Significance at P < .01)

Both the Factor Q-Sort Value (Q-SV) and the Z-Score (Z-SCR) are Shown.

                                                    Factors

                                                1           2           3
    No. Statement                    No.   Q-SV Z-SCR  Q-SV Z-SCR  Q-SV Z-SCR

    31 Obama, Michelle                31     4  2.37     4  1.89     2  0.84
    23 Degeneres, Ellen              23     4  1.99*    3  1.40     1  0.65
    28 Gomez, Selena                 28     3  1.25*   -2 -1.01    -2 -0.88
     8 Perry, Katy                    8     3  1.09*   -3 -1.13    -1 -0.65
    30 Underwood, Carrie             30     3  1.01*    1  0.38    -1 -0.61
    17 Rihanna                       17     2  1.00*   -2 -1.12    -2 -0.96
    24 Aniston, Jennifer             24     2  1.00*    0  0.02     0 -0.34
     3 Sprouse, Cole                  3     2  0.84    -1 -0.27     4  1.75
    36 Lovato, Demi                  36     2  0.75*   -2 -1.12    -2 -0.88
    14 Grande, Arianna               14     2  0.73*   -1 -0.29     3  1.67
    40 Douglas, Gabrielle            40     1  0.43*    3  1.18    -4 -2.29
    29 Williams, Serena              29     1  0.40*    4  1.87     4  1.98
     4 Beckham, David                 4     0  0.26     4  1.51     2  1.10
    47 Drake                         47     0  0.23    -2 -0.72    -1 -0.57
    27 Durant, Kevin                 27    -1 -0.10*    2  1.07    -3 -1.10
    25 Tiegan, Chrissy               25    -1 -0.23    -2 -0.71     2  0.88
    13 Alba, Jessica                 13    -1 -0.52*    1  0.49     2  0.84
    22 Pitbull                       22    -1 -0.53    -3 -1.60    -4 -1.45
    48 Jay-Z                         48    -1 -0.67    -3 -1.36     1  0.23
    42 Polamalu, Troy                42    -2 -0.75*    2  0.70     1  0.65
    12 Jenner, Kendall               12    -2 -0.99*   -3 -1.57     3  1.41
    39 Minaj, Nicki                  39    -2 -1.10*   -4 -1.84     1  0.57
    38 Maroney, Mckayla              38    -3 -1.44     0 -0.23    -1 -0.53
    41 Revis, Darell                 41    -3 -1.46*   -1 -0.26     0 -0.27
    10 Syndergard, Noah              10    -4 -1.54*    1  0.28     0 -0.31
    32 Kardashian, Kim               32    -4 -1.60    -4 -1.99     0 -0.23
    43 Stoudemire, Amare             43    -4 -1.74*   -1 -0.44    -2 -0.80


Distinguishing Statements for Factor  2

 (P < .05 ;  Asterisk (*) Indicates Significance at P < .01)

Both the Factor Q-Sort Value (Q-SV) and the Z-Score (Z-SCR) are Shown.

                                                    Factors

                                                1           2           3
    No. Statement                    No.   Q-SV Z-SCR  Q-SV Z-SCR  Q-SV Z-SCR

    31 Obama, Michelle                31     4  2.37     4  1.89     2  0.84
    26 James, Lebron                 26     1  0.62     3  1.48     1  0.61
    23 Degeneres, Ellen              23     4  1.99     3  1.40     1  0.65
    16 Curry, Stephen                16     1  0.40     3  1.31     1  0.45
    40 Douglas, Gabrielle            40     1  0.43     3  1.18*   -4 -2.29
    15 Mauer, Joe                    15    -3 -1.33     2  1.08*   -3 -1.06
    27 Durant, Kevin                 27    -1 -0.10     2  1.07*   -3 -1.10
     9 Kwan, Michelle                 9    -2 -1.01     2  0.88*   -2 -0.80
    19 Griffin, Blake                19    -2 -1.13     2  0.76*   -3 -1.10
    34 Ohno, Apollo Anton            34    -3 -1.42     2  0.54*   -3 -1.06
    30 Underwood, Carrie             30     3  1.01     1  0.38    -1 -0.61
    35 Knowles, Beyonce              35     4  1.45     0  0.25*    3  1.22
     3 Sprouse, Cole                  3     2  0.84    -1 -0.27*    4  1.75
    14 Grande, Arianna               14     2  0.73    -1 -0.29*    3  1.67
    25 Tiegan, Chrissy               25    -1 -0.23    -2 -0.71     2  0.88
    48 Jay-Z                         48    -1 -0.67    -3 -1.36*    1  0.23
    12 Jenner, Kendall               12    -2 -0.99    -3 -1.57*    3  1.41
    45 Swift, Taylor                 45     3  1.07    -4 -1.76*    1  0.61
    39 Minaj, Nicki                  39    -2 -1.10    -4 -1.84*    1  0.57
    32 Kardashian, Kim               32    -4 -1.60    -4 -1.99     0 -0.23
```

```
Distinguishing Statements for Factor  3

 (P < .05 ;  Asterisk (*) Indicates Significance at P < .01)

Both the Factor Q-Sort Value (Q-SV) and the Z-Score (Z-SCR) are Shown.

                                                        Factors
                                                1           2           3
No. Statement                           No.  Q-SV Z-SCR  Q-SV Z-SCR  Q-SV Z-SCR

  3 Sprouse, Cole                         3    2  0.84   -1 -0.27    4  1.75
 20 Jackman, Hugh                        20    0  0.09    1  0.38    4  1.75*
 21 Brady, Tom                           21    0  0.18    1  0.52    3  1.71*
 14 Grande, Arianna                      14    2  0.73   -1 -0.29    3  1.67*
 12 Jenner, Kendall                      12   -2 -0.99   -3 -1.57    3  1.41*
 25 Tiegan, Chrissy                      25   -1 -0.23   -2 -0.71    2  0.88*
 31 Obama, Michelle                      31    4  2.37    4  1.89    2  0.84*
 23 Degeneres, Ellen                     23    4  1.99    3  1.40    1  0.65
 39 Minaj, Nicki                         39   -2 -1.10   -4 -1.84    1  0.57*
 48 Jay-Z                                48   -1 -0.67   -3 -1.36    1  0.23
 32 Kardashian, Kim                      32   -4 -1.60   -4 -1.99    0 -0.23*
  7 Timberlake, Justin                    7    1  0.64    1  0.41   -1 -0.38
 30 Underwood, Carrie                    30    3  1.01    1  0.38   -1 -0.61*
  6 Legend, John                          6    2  0.72    1  0.40   -2 -0.92*
 27 Durant, Kevin                        27   -1 -0.10    2  1.07   -3 -1.10*
 11 Seacrest, Ryan                       11    0  0.11    0  0.16   -4 -1.22*
 40 Douglas, Gabrielle                   40    1  0.43    3  1.18   -4 -2.29*
```