A qualitative study of adolescent views of sugar sweetened beverage taxes

Claire Krukowski

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A Qualitative Study of Adolescent Views of Sugar Sweetened Beverage Taxes

By

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Thesis

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Ypsilanti, Michigan
Dedication

Without the support of others, my thesis would not have been possible. My mother, the eternal optimist, saw the positives in every situation, even when I could not. There were days when this alone kept me striving and working on this and other projects. My father was my companion pessimist/realist who commiserated with me as well as getting angry for me when things did not go my way. Though this did not do either of us any good, it made me feel better to know that you were on my side. My brother helped balance my life by playing Trivial Pursuit with me or watching some TV show. Taking breaks with you gave me the energy to keep working. You are my model of how life should be lived.
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Abstract

A qualitative study was used to investigate adolescents’ perceptions of sugar-sweetened beverage taxes using the Theory of Planned Behavior (attitude toward the behavior, subjective norms, perceived behavioral control, and behavioral intentions). A secondary purpose was to explore the role of habit in SSB consumption. Three focus groups were conducted at a suburban Detroit middle school with 22 students. Findings suggest that students understand short-and long-term advantages and disadvantages of sugar-sweetened beverages and personal and economic impacts of a sugar-sweetened beverage tax, though the economics of a tax was confusing for them. Students stated various factors that would make reducing sugar-sweetened beverage consumption difficult including habit and environment. Some students reported that they would decrease their consumption of sugar-sweetened beverages if 20% taxes were implemented. Sugar-sweetened beverage taxes could be used, in combination with other strategies, to reduce the high level of sugar-sweetened beverage consumption in adolescents.
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Chapter 1: Introduction

Sugar sweetened beverage (SSB) taxes are a widespread policy change occurring throughout the United States. As of January 1, 2014, thirty-four states plus the District of Columbia have implemented sugar-sweetened beverage taxes in stores and an additional five states tax vending machine sales in order to raise money and decrease consumption (Chriqui, Eidson & Chaloupka, 2014). Little research, and no qualitative research, has examined adolescents' responses to these taxes. Qualitative studies are needed to determine adolescents’ attitude toward SSB consumption, subjective norms, perceived behavioral control, and behavioral intentions when faced with SSB taxes, as described by the Theory of Planned Behavior (TPB).

Statement of the Problem

According to data provided by the Centers for Disease Control and Prevention’s Youth Risk Behavior Surveillance System (Centers for Disease Control and Prevention [CDC], 2011a), 27.8% of high school youth in the United States stated that they drank one or more soft drinks per day for the seven previous days before the survey. Of these same youth, 11.1% drank three or more soft drinks per day in the seven days before the survey. Other studies have found higher percentages of soft drink consumption among youth. When youth were asked about behaviors for the previous day only, 62% of boys and 55% of girls reported that they had consumed one or more soft drinks in the previous day (Ranjit, Evans, Byrd-Williams, Evans, & Hoelscher, 2010). When asked about sweetened non-carbonated beverages such as sports drinks, 62% of boys and 51% of girls in the same study reported that they had consumed one or more of this type of beverage
the previous day. Of these students, 35% of boys and 22% of girls reported that they had consumed three or more SSBs (both carbonated and non-carbonated) in the previous day.

According to a study of data from two nationally representative population surveys, the National Health and Nutrition Examination Survey III and National Health and Nutrition Examination Survey 1999 – 2004, of 20,000 children and adolescents 2 to 19 years old, the consumption of SSBs and 100% juice has increased per child from 242 calories per day in 1988 – 1994 to 270 calories per day from 1994 to 2004 (Wang, Bletch & Gortmaker, 2008). Consumption of these types of beverages accounts for 10 to 15% of children's daily calories.

SSB consumption and the unhealthy behaviors associated with it are leading to obesity and other health problems that are straining health care resources. Grimes, Riddell, Campbell, and Nowson (2013) found that children 2 – 16 years old consuming more than one SSB daily were 26% more likely to be overweight or obese. A longitudinal study of almost 283 nine year olds in the Danish part of the European Youth Heart Study found that children who consumed more than one SSB daily were more likely than their peers who consumed less than one SSB to have larger increases in BMIs and waist circumference (Zheng et al., 2014). Also, those participants who increased their consumption at the six-year follow up had larger increases in BMI and waist circumference than those who did not report a change in SSB consumption. Trasande and Chatterjee (2009) estimated that the increased expense for health care for obese children costs the United States $14.1 billion annually. Outpatient visits, prescription drug coverage and emergency room visit expenditures for obese and overweight children are higher than for normal weight or below average weight children. Trasande and
Chatterjee (2007) examined these trends over a two-year period. For outpatient office visits, the cost for overweight and obese children was $79 and $194 more, respectively, compared to their average-weight peers. The additional cost compared to average weight children for prescription coverage was $64 for overweight children and $114 for obese children. Emergency room coverage was also more expensive for obese and overweight children than for other children, $12 and $25 respectively. Health expenditures (both in quantity and cost for the individual service) were especially higher in overweight and obese adolescents.

In addition to the negative impacts of SSBs on youth and on health care costs detailed above, Ranjit, Evans, Byrd-Williams, Evans, and Hoelscher (2010) showed an association between SSB consumption (both carbonated and non-carbonated) and the consumption of other types of foods. They found that SSB consumption was positively associated with unhealthy food consumption such as unhealthy meats, french fries and desserts. Sedentary behaviors were also positively associated with unhealthy food consumption. However, when separating carbonated and non-carbonated beverages, a divergence occurred when comparing these beverages with healthy foods, defined as vegetables, whole fruit and milk. Carbonated SSBs were negatively associated with healthy food consumption, while non-carbonated SSBs, such as sports drinks and juice, were positively associated with healthy food consumption.

SSB taxes are in place across the nation; however, none of these taxes are above 7.25% (Chriqui, Eidson, & Chaloupka, 2014) and are not influencing consumption and obesity rates (Fletcher, Frisvold, & Tefft, 2010; Powell, Chriqui, & Chaloupka, 2009; Strum, Powell, Chriqui, & Chaloupka, 2010). Andreyeva, Chaloupka, and Brownell
Adolescent Views of Sugar-Sweetened Beverage (SSB) Taxes

(2011) estimated that every one percent increase in price would cause a one percent decrease in consumption. Therefore, a penny per ounce tax is hypothesized to cause a 24% reduction in SSB consumption. For instance, if a 32-ounce soda costs $1.50, a penny per ounce tax would cause an 18.4% price increase, which would be much larger than the current tax. This increase would result in a reduction of calories from SSBs from 190 – 200 pre-tax to 145 – 150 post-tax (Andreyeva, Chaloupka, & Brownell, 2011). The researchers believe that this level of calorie reduction would result in an individual losing five pounds annually. Kristensen et al., (2014) explored the impacts of federal policies on childhood obesity prevalence in 2032, twenty years after the implementation of the tax. Three policies were explored: physical activity programs, an advertising ban and a $0.01 per ounce tax on SSBs. Though the physical activity program had the highest impact on children, almost 2 percentage points, the highest impact on adolescents was found in a tax on SSBs, which reduced obesity by over 2%. Though all three policies decreased minority consumption more than that of Caucasians, SSB taxes decreased consumption in minorities more than any other intervention.

Limited quantitative studies have examined the impacts of substitution behaviors in adults as they relate to SSBs and fewer have been done with adolescents. Fletcher, Frisvold, and Taft (2010) studied substitution behaviors in children and adolescents in response to a soft drink tax using state soft drink data and excise tax data between 1989 and 2006, as well as data gathered from 34,000 respondents of the National Health Examination and Nutrition Survey. They found that whole milk was used as a substitute for soft drinks. This substitution was shown through an eight-calorie increase in whole milk consumption for every one percent increase in soft drink tax. This study showed
that the decrease of calories from SSBs was offset by an increase in whole milk consumption. Fletcher and colleagues (2010) went on to confirm their results in a lab through measuring vitamin D levels, which was shown to have increased, though statistically insignificant, which is consistent with increased whole milk consumption. However, no qualitative SSB studies have been done with adolescents.

**Purpose of the Study**

Substitution behaviors relating to SSB consumption when faced with hypothetical taxes have been studied in adults (Finkelstein et al., 2012; Fletcher et al., 2010; Rivard, Smith, McCann & Hyland, 2012). Data relating to both the Theory of Planned Behavior (TPB) and habit have been quantitatively studied as it relates to SSB consumption in adolescents (De Bruijn & van den Putte, 2009) and qualitatively in adults (Zoellner et al., 2012b). However, there is a lack of qualitative research in both of these areas, especially as it relates to adolescents – where there is no qualitative research. The objective of this study was to explore the topics of SSBs and SSB taxes with focus groups using scripts guided by the TPB as well as to explore the role that habit plays in SSB consumption. This study also examined the potential substitution behaviors that may occur when adolescents are faced with such a tax.

**Research Questions**

- What are the attitudes of adolescents towards SSBs?
- What are the attitudes of adolescents regarding taxes on SSBs?
- Who are the adolescents’ normative referents regarding health issues?
- What do adolescents think that their normative referents believe about drinking SSBs?
- Do adolescents think that a tax on SSBs would change their normative referent’s opinions on the amount of SSBs they should consume?
● How likely would adolescents be to comply with the opinions of their normative referents when making decisions about buying and drinking SSBs?
● Do adolescents believe that they are capable of substituting low fat milk, unsweetened tea or coffee, water, or not buying anything when faced with a 20% tax on SSBs?
● What is the influence of habit on adolescents considering substitution behaviors when faced with hypothetical SSB taxes?
● What are the behavioral intentions of adolescents faced with hypothetical SSB taxes?

Significance of the Study

This qualitative study gathered information on adolescents' views about SSB consumption when faced with tax increases. The TPB was used to structure questions, focusing on attitudes toward SSB consumption, subjective norms, perceived behavioral control, and behavioral intentions. Substitution behaviors were qualitatively studied to see what beverages might be substituted when adolescents are faced with a hypothetical beverage tax great enough to change behavior. One other researcher studied adolescents’ SSB substitution behavior (Fletcher et al., 2010); however, this prior study was not a qualitative study. A review of the literature identified no qualitative studies on SSB consumption in adolescents and no SSB habit studies on adolescents. Therefore, the information gathered from this study's focus groups could guide future research in developing quantitative studies with adolescents targeting the types of beverages they may substitute, as well as important referent groups and attitudes expressed regarding SSB taxes. Health professionals could use this information to determine ways that adolescents plan on making SSB decisions following new taxes on SSBs. This
information could be helpful in designing programs to help adolescents reduce SSB consumption.

Limitations

Information for this study was collected from sixth, seventh, and eighth graders at a single middle school in Romulus, Michigan, a suburb of Detroit. Though the school is racially/ethnically diverse, the students at the school are more likely than average to be in low-income households with 56% of the students receiving a free or reduced priced lunch. Additionally, because the students were drawn from three randomly selected classrooms, the sample selected may not be representative of the school as a whole. Therefore, the results may not be generalizable to communities with different demographics or to the school district as a whole.

An additional limitation of this study is that only three focus groups were used. Morgan (1998) recommended three to five focus groups for studies where the opinions of the participants are expected to be moderately diverse and where the topic is not complex, as was expected in this study. For groups such as these, there are diminishing returns on each additional focus group. However, it is difficult to determine the amount of groups necessary to reach saturation of information (Morgan, 1998). The last focus group did have different ways to phrase and explain ideas presented in the previous focus groups. Therefore, it was possible that saturation was not reached with three focus groups.

The groups were homogenous by age, and therefore the overall education and maturity of the groupings was the same; however, it was heterogeneous in that students of all levels of SSB consumption may have been interviewed in the same group.
Therefore, while the results may give a perspective from students of all SSB consumption levels, the education and maturity of the participants were similar.

**Assumptions**

The assumptions of the study include that enough parents and students would consent to participate in the focus group because of the limited risk to the student as well as the fact that consumption of SSBs is widely accepted. It was also assumed that students participating in the focus group would answer the questions openly and reliably since participation was voluntary.

Nelson and Lytle (2009) found that adolescents 11 to 18 years of age were able to reliably recall their beverage consumption. Therefore, it was assumed that adolescents in this focus group were mature enough to remember their SSB consumption as well as to analyze their thoughts and feelings about consumption.

**Definitions**

It was necessary to define the variables measured in this study as they relate to the TPB, SSBs, habit and taxes.

*Attitudes*: a person's feelings, both positive and negative, about the behavior in question (Ajzen, 2006)

*Subjective Norm*: a person's thoughts about others’ beliefs and the importance that they place on these beliefs (Ajzen, 2006).

*Normative Referents*: people who are important to the individual or whose opinions he/she values (Ajzen, 2006)

*Perceived Behavioral Control (PBC)*: a person's confidence that they can perform the behavior being described (Ajzen, 2006).
**Behavioral Intention**: the stated likelihood that an individual will perform the behavior (Ajzen, 2006).

**Sugar Sweetened Beverage**: "any beverage with added sugar or other caloric sweeteners such as high fructose corn syrup. Examples include soda, sports drinks, fruit drinks, teas, flavored/enhanced waters, and energy drinks" (Friedman & Brownell, 2012, p. 2).

**Habit**: an automatic response that occurs because of a cue (Orbell & Verplanken, 2010).

**Sales Tax**: a tax on goods or services that occurs at the point of sale (Sales Tax Advisors Inc., 2012)

**Excise Tax**: a tax on goods or services that occurs before the time of sale (Internal Revenue Service, 2013)

**Substitution Behavior**: a change in behavior that occurs because of a stimuli, in this case a SSB tax (Ferreira, Fruttero, Leite, & Lucchetti, 2012)

**Student**: any individual who is or has been in attendance at an educational agency or institution and regarding whom the agency or institution maintains educational records (Family Educational Rights and Privacy, 1974)
Chapter 2: Review of Related Literature

Sugar Sweetened Beverages (SSBs)

Soda, energy drinks, and sports drinks are the most popular SSBs for children above two years old (United States Department of Agriculture [USDA] & U.S. Department of Health and Human Services [USDHHS], 2010). As illustrated in Figure 1, almost 36% of added sugar in the U.S. diet comes from soda, energy drinks, and sports drinks, and when sweetened tea and fruit drinks are added, half of added sugar comes from SSBs.


The CDC conducted the Third National Health and Nutrition Examination Survey (NHANES III) in 2003 – 2004 and then again in 2005 – 2006 (Reedy & Krebs-Smith,
Adolescent Views of Sugar-Sweetened Beverage (SSB) Taxes

2010). This survey used a 24-hour dietary recall of 5,000 nationally representative children. The surveys were conducted in the homes by trained interviewers, as well as medical personnel who gathered health measurements in a specially equipped trailer. The results indicated that the number one source of calories from beverages for children 2 – 18 was soft drinks, which contributed 118 calories with an additional 55 calories added by other SSBs. Only the calories contributed by grain desserts (138 calories) and pizza (136 calories) contributed more calories.

Recent research on SSBs shows a high rate of consumption. Sturm, Powell, Chriqui, and Chaloupka (2010) studied a nationally representative sample of 7,414 students who had been surveyed since kindergarten. Data had been collected six times between kindergarten and fifth grade, though dietary input such as SSB consumption was only measured in fifth grade. This study found that an average of 6.1 SSBs were consumed weekly with a median consumption of two SSBs per day. This indicates that some students are drinking high amounts of SSBs.

However, soft drink consumption of high school students in the U.S. has declined since 2007 (CDC, 2011a) (see Figure 2). These percentages have declined for all levels of soft drink consumption: more than one, more than two, and more than three sodas daily in the last week. The decline in percentage for all levels of consumption was statistically significant (p<0.01) for the years between 2007 and 2011. The data is also statistically significant between 2007 and 2009 for two or more soft drinks (p<0.01).
Figure 2. Soft drinks consumed by U.S. high school students per day (2007 – 2011). 


Though SSB consumption is declining, the rates are above the recommended level proposed by the Beverage Guidance Panel (Popkin et al., 2006). The panel reviewed literature on beverages and health with the purpose of providing recommendations on beverage consumption. The panel included literature on "all fluid consumed by humans" but excluded meal replacement shakes and soups. A serving size was set at 8 fluid ounces. The panel then ranked, by nutritional value, beverages into six levels. Level one was water, as it should be consumed in large amounts. Level two beverages include unsweetened coffee and tea, as they have been shown in some studies to have beneficial characteristics and are a no calorie, natural way to flavor water. Although low fat milk, skim milk and soymilk, which are level 3 beverages, are a good way to consume calcium, vitamin D, and protein, they contain calories which should be considered. Non-calorically sweetened beverages, such as diet soda, make up the fourth level. According to Popkin et al., (2006) there is mixed research as to whether these beverages help or
hinder weight loss. The fifth level is high caloric beverages with some nutrients such as 100% fruit juice. While these beverages do provide some of the nutrients found in fruit, they lack the fiber and other nutrients in whole fruit. Level six was beverages, such as soft drinks, that should be consumed in limited quantities because they provide no nutritional value. The panel recommended that no more than 8 fluid ounces of liquid at the sixth level be consumed daily. Though soft drink consumption is declining, approximately 20% of high school students still consume more than the recommended amount in soft drinks alone (CDC, 2011a). This is in addition to the other SSBs that they may consume in a day.

**Health Problems Associated with SSB Consumption**

Sugar-sweetened beverages are associated with a variety of health issues including obesity and diabetes. These impacts on health not only cause health problems and premature death for individuals but also cause absenteeism, loss of productivity at work, and costs to taxpayers and individuals (Finkelstein, DiBonadventura, Burgess, & Hale, 2010). Childhood obesity predicts adulthood obesity (Whitaker, Wright, Pepe, Seidel, & Deitz, 1997). According to this study, 55% of obese children over the age of six were also obese as adults. This is compared to only 15% of non-obese children who would become obese as adults.

**Obesity.** The California Health Interview Survey of 43,000 adults and 4,000 adolescents in every county in the state of California indicated that SSB consumption is statistically tied to weight gain (Babey, Jones, Yu, & Goldstein, 2009). This analysis showed that both adults and adolescents who drink a soft drink or more per day are 18% more likely to be overweight than those who do not drink sodas on a typical day. Lower
income people and people of color are more likely to be overweight or obese as well as to drink higher than average amounts of soda. In adults, the statistics tying soda consumption to weight gain were significant when socioeconomic status and race were considered. The statistics were not significant in adolescents when race and parental income were considered, which the researchers attributed to a smaller sample size. However, though this data was not statistically significant, compared to white adolescents, Latino and African-American adolescents consume more soda, while Asian adolescents consume less. Adolescents of low socioeconomic status were more likely to consume SSBs than their higher income peers.

Wang (2010) estimated that an 18% reduction in SSB consumption would lead to a decreased intake of 15 – 35 calories per day for the average New York state resident. According to Wang, this would lead to 366 million less empty calories per day, 134 billion calories per year or 1.3 trillion calories over 10 years. This reflects the level of reduction a review of the literature estimated as the impact caused by a penny-per-ounce tax of SSBs.

According to the Healthy People 2010 review of nutrition and obesity objectives, obesity is a health challenge that continues to need concentrated focus (USDHHS, 2013a). The number of people at a healthy weight declined from 42% to 31% between 1988 and 2008. The Healthy People 2020 (USDHHS, 2013b) recommendation is to limit sugar intake, including SSBs, as one way to reduce weight or maintain a healthy weight.

According to a cross sectional analysis of data from 43,297 children aged 10 to 17, a variety of mental and physical conditions are associated with obesity in children and adolescents (Halfon, Larson, & Slusser, 2013). These include poorer health status, lower
emotional functioning, school related learning problems, ADHD, conduct disorders, depression, developmental delays, asthma, allergies, headaches, and ear infections. Halfon and colleagues (2013) further found an association between higher weight and a higher number of co-morbid conditions for each child.

Reilly and Kelly (2011) found a positive link between obesity and later health problems in a systematic review of 28 studies done between 2002 and 2010. These studies link childhood obesity (ages 2 to 18) and premature mortality and physical morbidity later in adulthood. Based on their review of the literature, Reilly and Kelly were able to form three conclusions. First, four out of the five studies that examined the topic of childhood obesity and premature death found a positive association between the two. Secondly, all of the 11 studies examining the link between childhood obesity and cardio-metabolic morbidity (diabetes, hypertension, heart disease and stroke) found a positive association. Lastly, according to all nine studies examining the issue, being overweight and obese were associated with asthma, polycystic ovary syndrome and receiving a disability pension.

The economic costs of obesity are high. Finkelstein, DiBonaventura, Burgess, and Hale (2010) used data gathered from a cross sectional analysis of the 2006 Medical Expenditures Panel Survey (MEPS) and the 2008 National Health and Wellness Survey (NHWS). MEPS is a nationally representative survey of civilian, non-institutionalized individuals’ health care costs broken down by type of service and source of payment. The NHWS is a self-administered online survey of 63,000 adult Americans, which measures, among other items, a self-reported BMI, absenteeism and presenteeism (cost of attending work while sick). Estimates indicated, with the exception of overweight men,
the costs of absenteeism, presenteeism, and medical costs were positively associated with an increase in BMI. According to Finkelstein and colleagues the average annual per person cost of obesity ranged from $1143 to $6694 depending on the BMI and gender of the person. They estimate that the cost of workplace obesity is $73 billion dollars per year.

**Diabetes.** According to Healthy People 2020 (USDHHS, 2013c), diabetes is a problem requiring focused interventions, though the rate of diabetes declined between 2009 – 2011, the first decrease since 2006. According to the CDC (2011b), there are currently 25.8 million individuals in the U.S. living with diabetes, 18.8 million diagnosed and another 7.0 million undiagnosed. This equates to 11% of the U.S. population over the age of 20 having diabetes.

The problems associated with diabetes increase the risk of heart disease, stroke, blindness, heart disease, kidney disease, amputations, and complications with pregnancy (CDC, 2011b; USDHHS, 2013c). Diabetes was an underlying or contributing factor in 231,404 deaths in 2007 (CDC, 2011b).

In the Black Women's Health Study, 43,960 women between the ages of 21 and 69 were monitored every two years from 1995 and 2005 to gain information on their dietary habits, chronic disease status, use of medications, drugs, alcohol, and other lifestyle factors (Palmer et al., 2008). Women who consumed more than two SSBs in a day were 24% more likely to develop type 2 diabetes than those who consumed less than one a month. There was a 31% increased likelihood of developing type 2 diabetes in women who drank two or more sweetened fruit drinks per day compared to those who consumed them less than once a month.
A meta-analysis of 11 studies in the MEDLINE database explored the link between type 2 Diabetes and SSB consumption (Malik et al., 2010). All of these studies compared SSB consumption of those in the highest quartiles of SSB consumption to those in the lower quartiles. The researchers found that individuals with the highest intake of SSBs had a 26% higher likelihood of developing type 2 diabetes than those with the lowest intake.

Dall et al. (2010) conducted an economic study using a Cost Diabetes Model, which combined data from peer reviewed literature, government statistics, national surveys, and medical claims databases. They found the annual average cost for a person with undiagnosed type 2 diabetes is $2,864 and $9,677 for each diagnosed case. In New York City, it is estimated that three-fourths of the cost for diabetes care is paid by Medicare and Medicaid (Kim, Berger, & Matte, 2006), making this an issue that impacts all Americans. Between 1990 and 2003 the costs for this care doubled from $242 million to $481 million.

Diabetes is associated with depression and physical disabilities (Chiu & Wray, 2010; Nouwen et al., 2010). Chui and Wray (2010) followed 20,433 adults 51 and older from 1998 to 2006. They found that adults with diabetes not only have a higher risk of disability, but they are more likely to develop additional physical disabilities over time than those without diabetes. For example, those aged 57 – 67 and non-diabetic added an average of 0.72 additional disabilities while diabetics added an average of 1.45 in the eight-year time period studied. Additionally, they found that these impacts are more pronounced in women, non-Whites, and those with lower socioeconomic status. Nouwen et al. (2010) linked diabetes and depression according to a systematic review and meta-
analysis of data. The meta-analysis showed that compared with non-diabetics, diabetics have a 24% increased risk of developing depression.

**Theoretical Explanation of SSB Consumption**

According to the Theory of Planned Behavior (TPB) there are four constructs that influence a behavior: Attitude toward a behavior, subjective norms, perceived behavioral control and behavioral intentions (Ajzen, 2006). Behavioral beliefs (an individual’s thoughts about what is necessary to perform the behavior) and evaluation of behavioral outcomes (the possible outcomes of the behavior) impact attitude toward a behavior. Normative beliefs (beliefs about how other people are behaving) and motivation to comply (an individual’s motivation to comply with these standards) influence subjective norms. Control beliefs (the presence or absence of factors in a person’s life that make it possible to control a behavior) and Perceived Power over these factors influences Perceived Behavioral Control.

![Figure 3. Theory of Reasoned Action and Theory of Planned Behavior.](image)

Figure created based on a figure from "Theory at a Glance," by The National Cancer Institute. Copyright 2005 by NIH Publication. (see appendix A)
The TPB states that the relationships between these factors are important with behavioral intention being the most important. Attitude toward the behavior, whether good, bad or neutral, and subjective norms, or a person’s thoughts on whether or not people important to them (normative referents) believe they should perform the behavior, influence behavioral intention. The TPB differs from a similar theory, The Theory of Reasoned Action (TRA), in that it adds control beliefs and perceived power, which influence perceived behavioral control. Perceived behavioral control in turn influences behavioral intention. According to the TPB, this chain of factors affects behavior.

The TPB (or similar components) has been used to explore SSB consumption. Zoellner, Estabrooks, Davy, Chen, and You (2012a) studied all of the components of the TPB as they relate to SSB consumption through a cross sectional survey of 119 southwest Virginia adult residents. They found a significant association between implementation intentions, behavioral intentions, normative beliefs and control beliefs. However, according to Zoellner and colleagues (2012a), the strongest predictor of SSB consumption (r = -0.51) was behavioral intentions.

In a qualitative study of SSB consumption, Zoellner et al. (2012b) conducted eight focus groups with a total of 54 adults who consumed more than one SSB per day to help understand the impacts of the TPB on SSB consumption. The researchers found both positive and negative associations. The most frequently stated positive associations were taste, caffeine/energy, and vitamins. The top negative associations were the sugar content and cavities. When considering subjective norms, doctors’ recommendations, followed by peer opinions, were considered most important to the focus group respondents. When the focus groups were asked what would make limiting SSB
consumption difficult, the availability/convenience of SSBs was the most commonly stated reason, followed by the size of the can and the cost.

Rivard, Smith, McCann, and Hyland (2012) researched factors of the TPB using a 20-minute random telephone interview of 592 respondents. Attitudes were discussed by asking about the respondents’ support of a tax on SSBs. Thirty-six percent stated that they support a tax on SSBs with greatest support among participants between 18 and 24 years of age, those with a BMI below 30 and those with higher levels of education. Those with the highest SSB consumption gave the lowest support including: African Americans, those with a BMI above 30, and those with lower levels of education.

The TPB suggests that the best determinant of behavior is the intention to perform the behavior. This intention is guided by attitude, subjective norms, and perceived behavioral control. However, two studies relating to SSB consumption explore the role of habit and consumption of SSBs (De Bruijn & van den Putte, 2009; Zhen, Wohlgenant, Karns and Kaufman, 2011).

De Bruijn and van den Putte (2009) used questionnaires to gather data from 312 secondary and vocational students in the Netherlands. There was an association between soft drink consumption, television viewing, and habit strength with the strongest associations between the TPB factors of intention and perceived behavioral control (PBC) as they relate to soft drink consumption. PBC was in turn the strongest TPB factor in the intention to limit soft drink consumption; De Bruijn and van den Putte believe that future interventions should be focused on PBC. However, habit strength was stronger than either PBC or intention. This indicates that health-related behaviors are at least partly habitual.
Zhen and associates (2011), used scanner data gathered by Nielsen Company’s Homescan for the years 2004 to 2006 in 100,000 households that agreed to record grocery purchases weekly for a year. They examined individual households over time to determine if purchasing habits of the household remain static despite price fluctuations (habit persistence). They found that sports and energy drinks are the least habit-forming beverages for households at all income strata. Habit persistence was stronger for diet soft drinks than it was for regular soft drinks regardless of household income. However, habit persistence was stronger in low-income households than high-income households for soda, whole milk, energy drinks, sports drinks, and sugar-sweetened juices.

Studies on the topic of SSB consumption guided by the TPB indicate that there is a relationship between the constructs of the TPB and the consumption of SSBs (Rivard et al., 2012; Zoellner et al., 2012a; Zoellner et al., 2012b). However, other studies have indicated that habit may influence SSB consumption and could add to our understanding of this topic (DeBruijn & van den Putte, 2009; Zhen, Wohlgenant, Karns & Kaufman, 2011). Zhen and colleagues (2011) hypothesized that the myopic thinking of households with strong habit persistence may override a tax on SSBs, making it less beneficial than projected.

**School-Based Policy Interventions to Decrease SSB Consumption**

According to Healthy People 2020, there is strong science to support maintaining a healthy weight through changes to the environment and culture of schools, workplaces, and community settings (USDHHS, 2013a). Goals of Healthy People 2020 related to a nutritious diet include reducing the consumption of calories from solid fats and added
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sugars as well as increasing the number of states (from eight states currently to 18 states by 2020) that incentivize stores to provide foods encouraged by the Dietary Guidelines.

Reducing access to SSBs is one policy intervention that is currently being used in schools to decrease the SSB consumption of children. Briefel et al. (2009) found that this policy is helpful in reducing consumption. Briefel and colleagues surveyed 2,314 children in first through twelfth grade in 287 schools. They found that the percentage of students who consume SSBs at school was 17% at elementary schools, 32% at middle schools, and 36% at high schools. Of students who were consuming SSBs at school, students at the elementary school level were much more likely to bring SSBs from home (67%) than were middle school and high school students, 29% and 18% respectively. Students at the secondary level were more likely to purchase SSBs at school, a fast-food restaurant or a store. Furthermore, this study found two associations between SSB consumption and school practices. The first was that there is an association between the amount of SSBs available in a school and consumption by students. This included having access to a school store or snack bars that sold SSBs and only offering milk as an a la carte beverage offering during lunch. Secondly, there was an association between serving french fries one time or less a week and decreased SSB consumption. Briefel and colleagues (2009) found that being in a school that limited access to SSB calorie consumption by 16 to 90 calories a day could result in a 3,040 to 17,100 calorie reduction in a 38-week school year. These reductions in calories depend on the age level of the student and amount of access-limiting practices that were employed in the building.

Cradock and colleagues (2011) studied the possible effect of a policy decision to restrict SSBs in Boston high schools. This policy forbade the sale of soft drinks or sports
drinks on school grounds and dictated that juice could only be sold if it was 100% fruit or vegetable juice. The policy was put into effect for the 2004 school year. Cradock et al. (2011) analyzed data reported by 2,000 high school students during 2004 and 2006, which was collected as part of the Boston Youth Survey. According to this survey, the daily consumption of SSBs decreased from 1.71 SSBs per day in spring 2004 to 1.38 in spring 2006. This data was compared to National Health and Nutrition Examination Survey data, which showed no such decrease in SSB consumption. The researchers also showed that decreases in SSBs in schools were not offset by consumption outside of school. They also noted that this SSB policy, which was shown to reduce consumption, was followed by other nutrition-related initiatives in Boston schools as a whole, including implementing nutrition education curricula, providing parent workshops, and developing committees to monitor the health of the schools.

The policy decision to limit SSBs in schools can impact the SSB consumption patterns of individuals, at least for children (Briefel, Crepinsek, Cabili, Wilson, & Gleason, 2009; Cradock et al., 2011). These studies show that limiting the availability of SSBs decreased consumption in the schools studied. Furthermore, Cradock and colleagues (2011) found that the lack of SSBs in schools was not offset by additional consumption later in the day, indicating that consumption is situational.

**Tax Policy Interventions to Decrease SSB Consumption**

Another method for reducing calories from added sugars for children, as well as adults, is through a tax on SSBs. Wang and colleagues (2012) used the Coronary Disease Policy Model to estimate the impact of a penny per ounce tax on SSBs. They found that the net caloric savings would be nine calories per day, assuming that this tax decreased
consumption by 15% and that 40% of the calories were offset by consumption by other sources. Wang and colleagues estimated that the caloric decline associated with a tax at this level would result in approximately 867,000 less overweight and obese adults aged 25 – 64, a 1.5% reduction.

According to data gathered by Friedman and Brownell (2012), between January 2009 and May 2010, seventeen states filed soft drink tax legislation that would raise the price of these beverages. Economic theory predicts that as the price of an item rises, consumption of that item typically falls (Mytton, Clarke, & Rayner, 2012). Friedman and Brownell (2012) stated that taxes will have three impacts:

- Sales will decrease causing consumers to demand healthier alternatives, which may encourage beverage manufacturers to reformulate their products.
- Money raised could be used to fund nutrition initiatives such as subsidies for health food or health education programs in school.
- The tax would convey the message that policy makers and the government are concerned about nutrition related to soft drink consumption.

**United States Tax Legislation History**

The CDC (1999) stated that one of the greatest public health accomplishments of the twentieth century was having more of the public view tobacco as a health hazard. Because of this smoking rates went from 42.4% in 1965 to 24.7% in 1997. Though this was attributed to many factors, one of the most effective means of reducing tobacco use was through increasing federal and state excise tax rates (CDC, 1999).

Current tax policy recommendations to decrease SSB consumption include a penny per ounce tax (Brownell et al., 2009; Brownell & Frieden, 2009; Wang, 2010;
Wang, Coxson, Shen, Goldman, & Bibbins-Domingo, 2012). A tax of a penny per ounce would raise the cost of a 20-ounce soft drink by 15 to 20% and would raise $14.9 billion in the first year alone (Brownell et al., 2009). Wang (2010) estimated that if the SSB consumption in New York State alone was reduced by 18%, it would prevent 3.5% of new cases of diabetes in men and 3% in women, which would, in 10 years, prevent 37,000 cases of diabetes statewide. Wang stated that avoiding the costs of treating diabetes and its health consequences would be the most apparent benefit from a statewide SSB tax in New York.

Some researchers also recommended a 20% tax on SSBs (Finkelstein et al., 2012; Rivard et al., 2012; Smith, Lin, & Lee, 2010). Smith and colleagues (2010) studied the effects of a hypothetical beverage tax on SSBs and found that a 20% tax on caloric sweetened beverages would reduce the net calorie intake of adults by 37 calories a day and of children by 43 calories daily. The authors went on to hypothesize that a decrease in calories of this magnitude would translate into a yearly reduction of 3.8 pounds in adults and 4.5 pounds in children. However, possible substitutions because of these taxes were not taken into consideration with this calculation. Therefore, calorie reduction and its predicted weight loss could be less than predicted.

A 35% increase in soft drink prices correlated with a 26% reduction of regular soft drink sales as determined by a five-phase intervention in which percentages of beverages consumed were examined (Block, Chandra, McManus, & Willett, 2010). The five phases included 1) gathering baseline data, 2) a 35% price increase on regular soft drinks, 3) a washout phase, 4) an educational phase, and 5) a combined educational and
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increased price phase. Consumption levels were 26% lower throughout the study with an 18% additional reduction during the combination of education and increased price phase.

Brownell et al. (2009) reviewed the literature and concluded that another option to reduce SSB consumption would be to tax beverages that exceed a threshold of an added caloric sweetener per ounce. Their recommendation is that this threshold be set at one added gram of sugar per ounce. The authors speculated that this option would encourage beverage manufacturers to reformulate drinks to contain less sugar or to produce new products with little sugar; however, this type of tax would be harder to administer because of its relative complexity.

Despite the promising results of hypothetical food taxes set at the studied rates, current tax levels have not been shown to be significant enough to impact consumer buying behavior and therefore the obesity rates (Fletcher et al., 2010; Powell, Chriqui, & Chaloupka, 2009; Sturm et al., 2010). Sturm et al. (2010) found taxes on soft drinks sold in grocery stores and vending machines ranged between zero and 7%, with the average being 4.2%, or 3.5% higher than other taxes on food. The most common recommendations for future taxes are 20% (Finkelstein et al., 2012; Rivard et al., 2012; Smith, Lin & Lee, 2010) and a penny-per-ounce tax (Brownell et al., 2009; Brownell & Frieden, 2009; Wang, 2010; Wang et al., 2012).

Effectiveness of SSB Tax Policies

Several studies compared the effectiveness of food sales taxes to excise taxes (Brownell & Frieden, 2009; Brownell et al., 2009; Wang, 2010; Friedman & Brownell, 2012). The advantages of excise taxes are numerous. Brownell and Frieden (2009) conducted a review of literature and found that sales taxes are the most common type of
food tax; however, excise taxes are more likely to impact the consumer’s buying decision because consumers are aware of the price increase when making purchasing decisions. Additionally, Brownell et al. (2009) note that excise taxes could be levied on producers and wholesalers, making this type of tax easier to collect since the tax would need to be gathered from a smaller number of locations. An additional advantage of excise taxes is that they would have an impact on foods purchased with the Supplemental Nutrition Assistance Program, formerly known as food stamps (Wang, 2010). According to Cole and Fox (2008), under this program, participants are exempted from state and local food taxes but would pay excise taxes.

There are a few disadvantages of excise taxes. Consumer price awareness could encourage buying larger containers, which are less expensive per ounce, or store brand soft drinks to reduce the final cost (Wang, 2010). Additionally, retailers, especially smaller businesses without a computerized cash register, would be inconvenienced by having to tax some beverages but not others, causing them to oppose the excise tax (Friedman & Brownell, 2012). Friedman and Brownell (2012) also hypothesize that the industry might absorb the tax costs.

Substitution Behaviors

The impact of substitution behaviors when people are faced with a tax on SSBs has been explored in a limited number of studies. Using data gathered from 592 twenty-minute telephone surveys of adults, Rivard et al. (2012) found that, if faced with a hypothetic 20% tax on SSBs, adults indicated that they would respond in a variety of different ways. Thirty-seven percent said the tax would not impact them at all, while 20% would switch to untaxed beverages (diet soft drinks and 100% fruit drinks).
Additionally, 39% would reduce their SSB consumption, and 4% were unaware of how they would respond.

Finkelstein et al. (2012) studied the substitution behaviors of a hypothetical 20% tax. This was done using the 2006 National Consumer Panel, a nationally representative sample of 28,584 households who agree to scan their grocery purchases weekly. Finkelstein and colleagues gave respondents food as well as beverage substitution options. The results revealed limited substitution to other beverages (and then only to fruit juice) and no evidence of substitution to sugary foods. However, even a limited substitution of 24.3 kilocalories a day would translate to an average weight loss of 1.6 pounds in the first year.

Zhen et al. (2011) used scanner data gathered by Nielsen Company’s Homescan which gathered household scanner data for the years 2004 to 2006 in 100,000 households that agreed to record at least weekly for a year. This data was used to look at substitution behaviors between higher income and lower income households when faced with a half-cent per ounce tax on SSBs. The study found that higher income households consider beverages, including but not limited to SSBs, to be more substitutable than lower income households. They found that sports and energy drinks were one of the least habit-forming drinks. Zhen and colleagues (2011) hypothesized that the tax revenue in the long run will be 15 – 20% lower than in the short run. Their research showed that price increases work best in the short term because with time individuals adjusted to the price difference. However, the researchers predicted that the tax, though lower than the penny-per-ounce tax that is recommended by some researchers (e.g., Brownell et al., 2009; Brownell & Frieden, 2009; Wang, 2010; Wang et al., 2012), would reduce SSB
consumption at all household income levels and would, in the long term, raise $1.9 billion every year nationally.

Another quantitative study was conducted with 318 adults who were divided into three groups (Tate et al., 2012). The first was the control group and the second two were the intervention groups. The intervention groups were asked to replace two SSBs daily with either water (the second group) or a diet SSB (the third group). The beverages were provided to the intervention groups. Participants who achieved 5% weight loss were twice as likely to be in the intervention groups than the control group.

The only focus group used to examine SSB consumption of adults involved 54 participants in eight focus groups in rural southwest Virginia (Zoellner et al., 2012b). When asked about reducing SSB consumption over the next month, the groups had mixed intentions. Few participants mentioned intention to change behaviors to the recommended less than one cup of SSBs per day. Others mentioned that they would be unwilling to substitute diet soft drinks for regular soft drinks. However, some participants mentioned that they would be willing to substitute diet beverages for other SSBs. Some mentioned limiting availability as a way to decrease consumption.

The substitution behaviors that will result from SSB taxes are inconclusive. When asked directly, the responses of adults were mixed regarding their intentions if faced with a SSB tax (Rivard et al., 2012). Other studies indicate that juice or milk will be substituted as a result of SSB taxes (Finkelstein et al., 2012; Fletcher et al., 2010). A study by Zhen and associates (2011) indicated that substitutions will be more prevalent in higher income households than in lower income households. When researchers ask participants to substitute either water or diet SSBs, more weight loss was achieved than in
the control groups. The only qualitative study on the issue of SSB substitution found that 54 adults in eight focus groups had a variety of opinions about their ability to make substitutions instead of consuming SSBs (Zoellner et al., 2012b).

Marrow (2011) discussed the issue of substitutions that may be made with a tax on SSBs. It was believed that though artificially sweetened beverages were a possible substitution for SSBs, initiatives should be enacted to encourage the consumption of water, unsweetened teas, and coffees and low fat milk. The author deemed these beverages as more favorable substitutions since the effects of artificial sweeteners, especially for children and adolescents, are not known.

**Equity of SSB Taxes**

Another important question that is often raised is whether these taxes hurt the poor unfairly since food taxes are regressive (Brownell & Frieden, 2009; Wang, 2010). Because the poor spend a larger proportion of their incomes on consumption and the rich save or invest a larger share of their income, the proportion the poor spend on taxes would be disproportionately high (Wang, 2010). The only exception to this is luxury goods. The tax burden on low-income households would be about 0.1% of their income compared to 0.03% of the income of those in a high income tax bracket (Zhen, Karns & Kaufman, 2011). The counter argument is that low-income households will only pay $1-2 more yearly (Zhen, Karns, & Kaufman, 2011). Additionally, currently taxed items such as cigarettes, SSBs and snack foods are not necessary for survival (Wang, 2010). Brownell et al. (2009) believe that because the poor are more likely to be impacted by diet-related diseases, increased taxes will also benefit them the most. A study of food stamp participants by Cole and Fox (2008) found the following:
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- Adults receiving food stamps consumed more of their added sugar from soft drinks compared to high-income individuals, 46% to 39% respectively.
- Children whose parents receive food stamps also consumed more of their added sugar from soft drinks (33%) compared to their higher income peers (29%).
- Sixty-seven percent of children whose parents received food stamps consumed a soft drink in the last 24 hours compared to 64% of their peers whose families do not receive food stamps.
- Sixty-three percent of adults who received food stamps consumed a soft drink in the last 24 hours compared to 50% of non-stamp eligible adults.

Therefore, a tax on unhealthy foods could improve the health of low-income families as well as impact them financially the most if the tax was high enough to be monetarily significant for them (Cole & Fox, 2008).

**Summary**

The level of SSB taxes needs to be raised in order to influence behavior because the current levels of taxation (less than 7%) are inadequate to change behavior for significant health benefits (Brownell et al., 2009; Fletcher et al., 2010; Sturm et al., 2010; Wang et al., 2012). Environmental policies are best practice for decreasing SSB consumption and can aid individual behavioral change in this area (USDHHS, 2013a). Environmental changes at schools have already impacted SSB consumption in children and adolescents, decreasing their consumption levels (Briefel et al., 2009; Cradock et al., 2011). All Americans could benefit if the tax levels were raised from the current level to 20% or more (Finkelstein et al., 2012; Rivard et al., 2012; Smith et al., 2010) or a penny-
adolescents (Brownell et al., 2009; Brownell & Frieden, 2009; Wang, 2010; Wang et al., 2012).

A limited number of studies have quantitatively studied substitution behaviors in adults (Finkelstein et al., 2012; Rivard et al., 2012) and one has studied this in children and adolescents (Fletcher et al., 2010). Many adults indicated that they may switch to non-caloric beverages or reduce consumption of SSBs, though others indicated that their SSB consumption will not be impacted (Rivard et al., 2012). These studies indicated that substitutions to other beverages, including milk and juice, would occur in children, adolescents and adults (Finkelstein et al., 2012; Fletcher, Frisvold & Tefft, 2010). Quantitative data has been gathered on the TPB and habit as it relates to SSB consumption in both adults and adolescents (De Bruijn & van den Putte, 2009). This data found a relationship between television viewing and SSB consumption (De Bruijn & van den Putte, 2009). Zhen and colleagues (2011) found a difference in the habits found in low-income households compared to high-income households. However, no qualitative studies with adolescents have been done on either substitution or habit.
Chapter 3: Methods

The primary purpose of this study was to use the constructs of the Theory of Planned Behavior (TPB) to assess opinions about SSBs (Sugar-Sweetened Beverages), a hypothetical tax on SSBs, and possible resulting substitution behaviors of adolescents when faced with a hypothetical SSB tax. The secondary purpose of the study was to explore the role that habit plays in SSB consumption among adolescents.

Subjects

Information was gathered using focus groups consisting of six to 12 students each. These students were middle school aged children (sixth to eighth grade) from 11 – 15 years old. The students were from randomly selected first hour classrooms at Summit Academy Middle School, which is located in Romulus, Michigan. The school has 515 students total. This is a racially/ethnically diverse school with approximately 54% Caucasian, 33% African American, 8% Latino, 2% Asian, and 3% either American Indian or Pacific Islander according to PowerSchool (Pearson School Systems, n.d.), the school’s reporting system. According to the same source, 48% were eligible for free lunch with an additional 8% receiving a reduced-priced lunch. A letter written by the school (see Appendix B) gave permission for the study to occur in the school.

Recruitment

Students were recruited by classroom. Parents were able to opt their child out of the recruitment process. Active consent forms were signed by a parent/guardian before the students were assigned to a focus group. Students gave active assent before they participated.
**Classroom selection.** Students were initially recruited from two randomly selected classrooms. Classrooms were selected by inserting the names of homeroom teachers into an Excel™ spreadsheet. The sort function, which placed the teacher’s names in a random order, was used to sort the classrooms into a list. The first two classrooms were asked to participate. The second classroom selected would have been eliminated if both classrooms contained students in the same grade, and the next classroom on the list would have been selected in its place. This would have been done to ensure that data was gathered from at least two grades. If a teacher did not want his/her classroom to participate, an additional classroom would have been selected from the random classrooms Excel™ list.

**Student selection.** Before students were given any information about the study, parents from the selected classrooms received a letter by mail giving them the opportunity to opt their child out of the research study (see Appendix C), including opting the child out of being invited to participate in the recruitment process. Once parents received that letter, they were given ten days to decide whether or not they wanted their child to participate. After this point, it was assumed that unless the parents had returned the opt out form, the child could be involved in the recruitment process. Active parental consent (see Appendix D) was obtained before the student could participate in the study.

The recruitment script (see Appendix E) was read by the researcher to recruit students in the selected classrooms. Parents who decided to opt their child out of the study could choose whether or not to have their child remain in the classroom for the reading of the recruitment script. While a few parents opted their child out of the study,
all allowed their child to remain in the classroom while the assent and consent forms were handed out and the study was explained. All students, except the students whose parents returned the opt out form stating that they did not want their child to participate, received a guardian letter (see Appendix F), parental consent forms (see Appendix D) and two student assent forms (see Appendix G) that the students took home. One copy of the assent and consent forms was returned to the researcher with the additional copy remaining at home for the parents’ records.

Both three days and one week after the student recruitment script was read, the classroom teacher read a reminder to the students to return the assent and consent forms if they wanted to participate in the focus groups (see Appendix H). The researcher reminded the classroom teacher the day before and the morning of these dates.

Students were assigned to focus groups based on the order they turned in the active parental consent and student assent forms. The first 12 students to do this were assigned to the first focus group, with the second 12 being assigned to the second focus group, and the remaining 12 to the last focus group. A postcard with the date for the focus group was sent home with the students one week before and then a day before the focus group (see Appendix I).

Since 36 students were not recruited from the first 2 classrooms of students within 10 days, the process was repeated with an additional classroom. The classroom selected was the next classroom on the spreadsheet’s randomly ordered list. All student classroom recruitment followed the same protocol described previously. This process was repeated twice until 36 students were recruited. Thirty-six students were recruited to increase the likelihood that approximately eight students would attend each focus group. This over
recruitment would allow for the fact that some parents may have decided to not have their child participate after consenting, a student may have decided that they did not want to participate, or students may have been absent on the day of the focus group.

**Consent and assent forms.** Consent and assent forms were returned by the child to the child’s homeroom teacher. Returning similar documents, such as permission slips, is commonplace within the school. The homeroom teachers collected these forms and returned them to the researcher.

The consent (see Appendix D) and assent (see Appendix G) forms explained the topic of the study. Additionally, they stated that participation in these focus groups was voluntary and the researcher would keep the information provided in these focus groups confidential. Tapes, transcripts, consent, and assent forms, surveys, and notes from the focus group were kept in a locked cabinet. Students in the focus groups did not give their names. Students were also asked to keep the information discussed in the focus group confidential.

**Risks.** One risk of participation in this study was that students would not keep information about the study confidential. Other risks of participation in the focus groups were bullying or peer pressure, either during or after the focus groups. Language was used in the focus group script to encourage students to be accepting of others’ ideas. Students were instructed to speak to the researcher or another teacher if they felt bullying or peer pressure as a result of the focus groups. Students were also asked at the end of the focus group not to tease or bully anyone because of the views or opinions that they shared during the focus group. Any problems would have been handled in accordance to the schools anti-bullying policy (National Charter Schools Institute, 2012). However,
there were no problems that were reported to the researcher or to a classroom teacher.

An additional risk of participation in the focus groups, because of the nature of the discussion, was that overweight or obese individuals may have been referred to in a negative way. Before starting the focus group, students were specifically asked to be respectful of people who are overweight or obese and that the term ”overweight” be used instead of more derogatory terms that may be more familiar to them. With a couple of exceptions, this was respected during the focus group. Also, there was a risk that students would feel stressed, tired, or experience other negative emotions because of their participation in the focus group. To reduce this risk, students were given a break between the end of the school day and the start of the focus group. They had an opportunity to have snacks and to talk to the other students in the focus group. They were also told that they could leave the focus group at any time, either for a break or permanently; however, no student asked to leave the focus group, take a break during the focus group, or appeared distressed.

**Incentives and tokens of appreciation.** Students who participated in the focus groups received a jeans and hoodie pass and a healthy snack. According to Morgan (1998), focus groups are time consuming for participants. Those without a personal interest in the subject likely will not participate without a token of thanks for their time. Without a cash incentive, refreshments are appreciated. These tokens of appreciation were clearly described on the active parental consent form and on the student assent form.
Study Design

This study was designed following the constructs of the TPB. Focus groups and surveys were used to gather the data.

Focus groups. The study consisted of three focus groups, each lasting approximately an hour. Three groups were selected because of the lack of diversity expected in the responses. According to Morgan (1998), if lack of diversity is believed to be true, fewer groups are recommended to avoid the groups' answers becoming repetitive. The minimum number of three focus groups was selected so the researcher was able to determine the attitudes, subjective norms, behavioral control, behavioral intention, and habits of an acceptable number of students (Morgan, 1998). Additionally, three groups would be sufficient to determine which themes are specific only to one focus group and which are true for this sample. The length of an hour was selected, purposely keeping the time on the shorter end of the hour to hour and a half recommended for focus groups because of the age of the participants.

Recruitment design. Six to 10 participants are the recommended size for a focus group (Morgan, 1998). For this study, 12 participants were recruited per focus group as it was predicted that some students would be absent on the day of the focus group or may change their minds about participating. Over recruitment by two participants was recommended by Morgan (1995) as a way to assure that there are sufficient participants for a focus group. Over recruitment allows the number of students participating in the focus group to fall between six to 10 participants even if some students are not available.

Because this study involved human subjects, the Human Subjects Review Committee, part of the College of Health and Human Services at Eastern Michigan
University, reviewed and approved the study protocol (see Appendix J). Active consent was used in this study, as the focus groups were a research project and not a typical school activity.

**Focus group logistics.** Focus groups were used to gather qualitative information through a variety of open-ended questions. These groups occurred after school. Healthy snacks and refreshments were provided for the students at the focus groups. The groups took place in a classroom in the students' school, as this was a location comfortable and convenient for the students (Morgan, 1998). The focus group moderator used a script with specific open-ended questions and prompts (see Appendix K). The questions for this script were guided by the components of the TPB: attitudes, subjective norms, perceived behavioral control, and intention. In addition, the study explored the role that habit has in SSB consumption. The focus groups were recorded and a note taker recorded additional observations. After the thesis is complete, the audiotapes will be destroyed.

**Questionnaires and screeners.** A questionnaire was used to gather quantitative demographic data including gender (male, female) and race/ethnicity (White/Caucasian, African American/Black, Latino/Hispanic, Asian, or Other with a line to provide the race/ethnicity of their choice) (see Appendix L).

Information about levels of SSB consumption was also gathered through an adapted section of the Brief Dietary Screener (Nelson & Lytle, 2009) developed to assess beverage and fast-food consumption of adolescents ages 11 to 18 (see Appendix M). This screener gathered information about both the frequency and the volume of consumption of a variety of beverages focusing on SSB consumption. The original screener was tested for reliability through test/retest of 33 students, which yielded a
strong correlation, especially for the beverage section of the screener. Spearman correlations and kappa statistics for this screener were >0.60. To assess validity, the researchers compared the results of the screeners to a dietary recall of 59 students. Validity was found in the frequency of intake for soda, sports drinks, and milk compared to a dietary recall. The quantity of soft drinks reported on the screener compared to a dietary recall was also found to be statistically significant (Nelson & Lytle, 2009).

The screener was adapted for this study in several ways, with permission of its authors (see Appendix N). The term pop instead of "soft drink or pop" was used on the screener as this is the common term used in Southeastern Michigan and would be more familiar to the students. Energy drinks were also added to the list of SSBs. The original screener asked about the frequency of consumption for five SSBs but only asked about the amount consumed each time for soda. Questions were added to assess four additional types of SSBs, including sugar-sweetened coffee drinks, energy drinks, sports drinks and other miscellaneous SSBs. Examples of other SSBs were listed next to the term other. Additionally, to make the screener easier for middle-school students to use, the formatting of the screener was adapted by changing the questions to a multiple-choice style with the answers underneath the question. The original screener had the students place a letter that represented the quantity of their consumption from a box on the side of the page.

**Data Collection**

After all the students had arrived and were seated, the note taker gave the students a SSB screener (see Appendix M) and demographic survey (see Appendix L) to
complete. Once the students completed them, the moderator introduced the procedure for the focus group.

Following this, an introduction to the topic of SSBs took place. Students were shown bottles/containers of different SSBs including soda, sports drinks, milkshakes, lemonade, and sweetened coffees. They were given a worksheet with pictures of these beverages and were asked to circle the beverages that they consume more than once a week (see Appendix O). The students were then asked to keep these beverages in mind when the term SSB was used. At the same time, the SSB screener (see Appendix M) and demographic survey (see Appendix L) were collected.

After completing the worksheet, the students were shown bottles of SSBs with both the current price and the price with a 20% tax. This was used as a concrete way for them to think about SSB taxes. The students were informed that the day's discussion would ask about their thoughts on taxes at this level. Following this introduction, the audio tape recorders were turned on and the moderator then facilitated the qualitative data collection using the focus group script as a guide (see Appendix K). The main questions are summarized in Table 1.
Table 1

*Questions for the 3 focus groups, Romulus, Michigan, June 2014*

| Attitude                                      | ● What do you think about SSBs?  
|                                              | ● What do you think about a new tax on sugar-sweetened beverages like I just showed you? |
| Subjective norms                             | ● Who are some people that you talk to about health related things?  
|                                              | ● What do you think that the people written on the white board think about adolescents drinking SSBs?  
|                                              | ● How do you think these people's opinions might change about teens drinking SSBs if the tax went up?  
|                                              | ● Now I would like you to think about which of the people written on the board might influence your SSB buying. Whose opinions about SSB buying, if anyone, would most likely change the amount of SSBs that you buy?  
|                                              | ● Whose opinions, if anyone, would make you do the opposite of what they recommend? |
| Intentions                                    | ● If the price of sugar-sweetened beverages went up 20% like is shown on the bottles over there, what would you do? |
| Perceived behavioral control                  | ● If SSBs became too expensive to buy, what would you do?  
|                                              | ● What other types of drinks or food might you buy instead, if any?  
|                                              | ● What would help make a change like that easy/hard? |
| Habit                                         | ● Are there times that habit influences you to drink SSBs?  
|                                              | ● Are there ways that habit might make it difficult to drink less or no SSBs?  
|                                              | ● Are there ways that habit might make it easy to drink less SSBs? |

The notetaker had three additional responsibilities as outlined by Mack, Woodsong, MacQueen, Guest and Namey (2005). The note taker was responsible for assuring that the tape recorders were turned on and to check that they were still recording. Two recorders were used – one as the primary recording device and the second as a backup in case the first one failed or malfunctioned. The notetaker was also responsible for taking notes on the discussion as guided by the note taker form (see Appendix P). The final responsibility was to draw a seating chart of the group at the start of the focus group. The seating chart labeled the location of the participants (identified only by number) around the table.
Data Analysis

The focus group moderator and notetaker discussed impressions immediately following each focus group using a debriefing guide (see Appendix Q). The focus group audiotapes were then transcribed by the researcher and analyzed using NVivo software (DTDigital, 2012). The surveys, active parental consent forms, student assent forms, the notetaker guide, and the debriefing forms were kept in a folder in a locked filing cabinet. Recordings of the focus groups were saved to a flash drive and stored in the same cabinet. The materials were kept in separate envelopes for each focus group, but the envelopes were kept in the same cabinet. The researcher was the only one with access to the locked cabinet.

The notetaker's field notes and the focus group discussion guide were used to identify keywords for data analysis that were used to identify themes across the focus group transcripts. These themes included the factors of the TPB including attitudes, subjective norms, perceived behavioral control, and intentions, as well as habit. Specifically, students’ attitudes toward SSBs and SSB taxes were explored as well as exploring who their referents (subject norms) were and their views of SSBs and SSB taxes. Perceived Behavioral Control was examined by looking at what factors the students felt would make change easy and hard. Because students mentioned home environment as a factor in making changes easy or hard, this was added as well. Students had definite behavioral intentions. Because habit was explored in addition to TPB, questions about dates, times of day, year, and seasons were analyzed in NVivo software (DTDigital, 2012).
The demographic and SSB quantitative data was analyzed using SPSS (Statistical Packages for the Social Sciences) version 21 software in order to provide an accurate description of the focus groups. Frequencies and percentages were calculated.
Chapter 4: Results and Discussion

In this chapter the results, both quantitative and qualitative, will be explored as guided by the research questions posed. Quantitative data was gathered on the demographic makeup of the focus groups and the frequency and quantity of consumption of SSBs and non-SSBs. Qualitatively, the Theory of Planned Behavior (TPB) guided the research questions, which in turn guided the focus group questions. The responses were analyzed guided by the research questions. Different queries such as taste, cost, and home environment were also explored as important themes that were mentioned in response to various questions.

Quantitative Results

The following data was analyzed using SPSS version 21 with the results being illustrated in Table 2. The three focus groups contained 22 students in total. Focus groups contained between 6 and 10 students. Though 36 students were recruited, only 22 (61%) were present on the day of their survey and focus group. Of these 22 students, the majority of the students were female (59%) with 41% being male. The largest racial/ethnic group was Caucasian (50%) with Latino, African-American and Other (i.e. mix between African American/Caucasian and Albanian) also being represented. Table 2 gives exact percentages.
Table 2

Number and Percentage of the Gender and Race/Ethnicity of the 6th-8th Grade Students (n=22), Romulus, Michigan, June 2014

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9</td>
<td>40.9</td>
</tr>
<tr>
<td>Female</td>
<td>13</td>
<td>59.1</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>11</td>
<td>50</td>
</tr>
<tr>
<td>Latino</td>
<td>4</td>
<td>18.2</td>
</tr>
<tr>
<td>African American</td>
<td>3</td>
<td>13.6</td>
</tr>
<tr>
<td>Other(^a)</td>
<td>4</td>
<td>18.2</td>
</tr>
</tbody>
</table>

\(^a\) For “Other,” two students wrote in Caucasian and African-American and one wrote Albanian.

The students reporting their ethnicity as Latino was higher than the school’s population while the number of African-Americans was lower. However, the survey allowed an “Other” option, a choice that the school does not offer. For school demographics, one racial/ethnic group needs to be selected.

Table 3 provides information about the frequency of consumption of different SSBs and non-SSBs. This information was gathered using surveys completed at the beginning of the focus groups. Percentages given are rounded to the nearest whole number in the information below:

- Twelve students (54%) reported that they consume pop 1 – 7 times a week.
- Thirteen students (59%) report consuming “Other” SSBs, including sweetened tea, lemonade, and juice that is not 100% fruit juice, 1 – 7 times a week.
- Twelve students (54%) reported consuming sports drinks less than once a week.
- Coffee and energy drinks are rarely consumed with 14 students (64%) and 13 students (59%) respectively reporting that they drink them rarely or never. About 18 students (82%) stated that they rarely or never drink diet pop.
• Nine students (41%) reported milk consumption less than once a week and another eight (36%) students reported milk consumption once a day or more.

• Water consumption was higher than any other type beverage with all students reporting water consumption at least once or twice a week and 15 students (68%) consuming it 3 or more times a day.

Table 3

Number and Percent of 6th-8th Grade Students (n=22) Consuming Different Sugar-Sweetened and Non-Sugar-Sweetened Beverages, Romulus, Michigan, June 2014

<table>
<thead>
<tr>
<th>Measure</th>
<th>SSBs</th>
<th>Non-SSBs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pop</td>
<td>Coffee</td>
</tr>
<tr>
<td>Rarely or never</td>
<td>3 (13.6)</td>
<td>14 (63.6)</td>
</tr>
<tr>
<td>1 time a month</td>
<td>3 (13.6)</td>
<td>0c</td>
</tr>
<tr>
<td>2 to 3 times a week</td>
<td>4 (18.2)</td>
<td>3 (13.6)</td>
</tr>
<tr>
<td>1 to 2 times a week</td>
<td>5 (22.7)</td>
<td>2 (9.1)</td>
</tr>
<tr>
<td>3 to 4 times a week</td>
<td>5 (22.7)</td>
<td>2 (9.1)</td>
</tr>
<tr>
<td>5 to 6 times a week</td>
<td>1 (4.5)</td>
<td>1 (4.5)</td>
</tr>
<tr>
<td>1 time per day</td>
<td>1 (4.5)</td>
<td>0c</td>
</tr>
<tr>
<td>2 times per day</td>
<td>0c</td>
<td>0c</td>
</tr>
<tr>
<td>3 times per day</td>
<td>0c</td>
<td>0c</td>
</tr>
</tbody>
</table>

a“Pop” is the regional word for “soda” in Michigan.
b“Other” SSB drinks were described to the students as including sweetened teas, fruit juices that were not 100% fruit juice and lemonade.
c0 indicates that no students selected this option. Students were also asked about the consumption level for each beverage: “I don’t drink it”, “One container”, or “More than one container” (see Table 4).

Students were also asked about the consumption level for each beverage: “I don’t drink it,” “One container,” or “More than one container” (see Table 4).
For pop and sports drinks one container was reported more than half of the time. Eighteen students (82%) and fourteen students (64%) reported drinking pop and sports drinks in this amount.

Nine students (41%) reported that they consumed one container of milk at a time with an equal amount reporting more than one container at a time.

For water consumption, 19 students (86%) reported drinking more than one container each time they consumed water.

**Table 4**

<table>
<thead>
<tr>
<th>Measure</th>
<th>SSBs</th>
<th>Non-SSBs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Pop</strong></td>
<td><strong>Coffee</strong></td>
</tr>
<tr>
<td>I don’t drink it</td>
<td>2 (9.1)</td>
<td>11 (50)</td>
</tr>
<tr>
<td>One container</td>
<td>18 (81.9)</td>
<td>8 (36.4)</td>
</tr>
<tr>
<td>More than one container</td>
<td>2 (9.1)</td>
<td>3 (13.6)</td>
</tr>
</tbody>
</table>

^a “Pop” is the regional word for “soda” in Michigan  
^b Values do not add up to 100% as one subject did not answer this question  
^c “Other” SSB drinks were described to the students as including sweetened teas, fruit juices that were not 100% fruit juice and lemonade  
^d 0 indicates that no students selected this option

Overall, pop, sports drinks, and “other” SSBs such as sweetened teas, juices that are not a 100% fruit juice, and lemonade were the most popular SSBs. The most popular non-SSB was water with almost three quarters of students consuming it once or more daily. Students also reported consuming more than one container at a time. Milk was also popular with more than half consuming it at least once a day.
Qualitative Results

According to the TPB, individual behavior is influenced by attitudes, subjective norms and perceived behavioral control (Ajzen, 2006). These factors influence behavioral intentions, which influences behavior. This research study was shaped by these factors as well as exploring the role that habit plays in influencing behavior. Analysis was done using NVivo software (DTDigital, 2012) guided by these same factors. Middle school students reported this data as part of three separate focus groups in the summer of 2014. During coding (Figure 4), attention was paid to how the factors of the TPB relate to both SSBs and SSB taxes. Habit was also explored, examining the ways that it impacts SSB consumption. Also explored was how habit might make changes related to the tax easier or harder. Queries were also made relating to cost, taste, and home environment. Quotations were used to show the views of participants as they relate to the TPB.
1. Attitudes towards SSBs
   a. Positive
   b. Negative
2. Attitudes towards SSB taxes
   a. Positive
   b. Negative
3. Subjective Norms
   a. Who are the referents?
   b. Thoughts on SSBs
   c. Thoughts on SSB taxes
   d. Student motivation to comply
4. Perceived Behavioral Control
   a. What would make changes easy?
   b. What would make changes hard?
   c. Home environment
5. Behavioral Intentions
   a. Buying behaviors
   b. Substitutions
6. Habit
   a. Dates
   b. Times of day
   c. Seasons

Figure 4. Coding themes for SSBs, SSB taxes and habit from the 3 focus groups in Romulus, Michigan, June 2014

**Attitudes.** Students were able to share both the advantages and disadvantages of both SSBs and SSB taxes. They could see how a tax on these types of beverages could impact both them individually as well as how it would impact others.

**Attitudes about SSBs.** Many students in the focus groups stated positive attributes of SSBs including providing energy and how they taste. A few also mentioned that the production of SSBs gives jobs. One student said, “*People buy them and that's how people make money. So I support them.*” The focus groups also gave negative attributes of SSBs including that they have “*too much sugar.***” Several students also
Adolescent Views of Sugar-Sweetened Beverage (SSB) Taxes

mentioned SSBs making consumers “hyper” and “fat” or obese. A couple of students mentioned that SSBs could cause diabetes or cavities.

**Attitudes about a tax on SSBs.** When asked about their thoughts on SSB taxes, many students stated that the positives of such a tax included the opinion that less people are going to buy them because they are more expensive. One student stated, “I think it would stop so many people from buying sugary drinks.”

There was discussion in two of the focus groups regarding who would receive the tax money: the government, the store selling the SSBs or the pop industry. One student said, “Twenty percent adds up after a while and that would, it could be, a good thing because the store will be making more money.” In another group a student said, “Pop companies would make more money so I support them. They would make more money and they would produce more pop.” Another student corrected him, “The tax goes to the government and if the government received it, they would have more money to fix our broken streets.” Both groups, in the end, decided that the government would receive the money. Many students stated that, at least for some people, the tax would not make a difference stating that some people are “addicted.” One student stated, “I think that there are people who are overly addicted to sugary beverages and they are probably going to buy them whether or not they cost a lot of money.”

A few students associated negatives with the increase in price, specifically considering that, “the economy is pretty bad, it might put people in a crisis that really need it.” Another concern mentioned a couple of times was that if a tax was placed on pop, it would change the price of pop, so it would be less likely to cost a certain amount of money (i.e., a dollar). It was mentioned that with a tax the students would need to
carry more change as in the example that if a pop costs a dollar, with a 6% sales tax and a 20% soda tax, they would need an additional 26 cents. A student mentioned that not having pop cost a dollar at Taco Bell had already caused him to leave and go across the street to McDonalds, where he knew that pop would be on the dollar menu. The student said, “I went into Taco Bell and I’m like can I get a small drink?” [the cashier asked for] ‘A dollar forty.’ I am like, ‘Oh, I’m going to McDonalds.’ I went across the street.”

**Subjective Norms.** Students were asked whom they talk to about health related topics. The most frequent response was “my mom” with many others stating “my doctor.” Family and other adults were mentioned, including dads, grandparents, and siblings. Friends were rarely mentioned.

When asked whose opinions were important regarding the purchasing of SSBs they listed their friends and parents. One group said that friends were more important because “kids listen to their friends more than their parents.” Another stated, “Well, anyone that really you look up to or that inspires you because if they are telling you something, if you look up to them, you are probably going to say ‘OK.’ I am going to take this from you.” Mom was mentioned much more frequently than dad as someone that they discuss health issues with or who influences their SSB consumption decisions.

When asked whose opinions they would not listen to, many students stated their siblings and friends. One student stated, “I think your friends because they might be addicted to it (SSBs) and probably would like to get you used to drinking it.” Parents were also mentioned as people they would not listen to because “they yell and make you feel bad.”
The students believed that all individuals would think that they should drink less SSBs, unless they indicated the individuals drink a lot of SSBs themselves. Students made statements such as, “Your family might not care because they’re drinking them also” or “my friends would say that it’s OK because that’s what everyone does now.”

Students could not differentiate between a referent’s thoughts on a SSB tax and how they felt the referents would feel the tax would impact teen SSB consumption, even when specifically asked about how it would relate to teens. They gave more general statements about the tax such as, “I don't think that people [referents with high consumption levels] are going to really think about it because they are addicted.” For referents that they had previously stated would be against adolescents drinking SSBs, such as doctors, they stated that the referent “would think that [a SSB tax] is a good idea.”

**Perceived behavioral control.** A couple of students suggested changes in the environment as a way to drink less SSBs. It was mentioned that an individual could consume less SSBs by “getting rid of what’s in your fridge. Like, getting rid of the one extra 2 liter in your fridge and not buying any more. Only buying non-sugary drinks.”

Students seemed to be cognizant of the fact that the placement of foods in their homes and what is kept cold impacted their SSB consumption. Several students stated that they drink the beverages that are kept cold and are easily brought to events outside the home. One student said, “After I’ve been outside and it’s really hot and I go in my fridge and it’s really cold...usually the healthy [drinks] are in the back and the not so healthy drinks are in the front. So whatever is in the front is what I usually grab.”

Another student agreed stating, “Most of the time, it's during the summer for me, 'cause I
go to cheer and it's always like 70, 80 degrees outside. So it makes it like a 100 degrees in there (the gym). And I want something cold and that is what I usually bring, 'cause there's no warm water, [self-corrects] no cold water.” Students also seemed to realize that what they drank on a daily basis was, overall, controlled by their parents. One student stated, “Today, if I've been drinking water all day and, like, tomorrow my dad brings home dozens of pop, I’ll literally devour the pop. And I’ll forget all about the water.” Another student added, “It’s hard to control yourself when there’s a lot of sugary drinks around you.”

**Behavioral intentions and substitution.** When asked what they would do if faced with an SSB tax, many students said that they would drink less SSBs with several stating that it would be “too expensive.” When asked why they would continue to drink SSBs when there is a tax on them some students said that they enjoy SSBs or because they are still cheaper than healthier drinks. One student stated, “I will probably still do the reusable water bottle but I would probably still buy it [an SSB] a lot because they are still cheaper than anything healthy, which is kind of dumb.” Other students said they would use it as a reward “like after a hard day at school or something like that.” A couple of others said that they would continue to buy it but would buy it less often. An example of this was, “I would probably still buy it but not as often, like, maybe once a month so I can still have the pop or whatever.”

When asked how high a tax would have to be for them to stop drinking it altogether, students answered between 50% and 100%. They discussed what would happen if prices went up. Most believed some people would continue to buy it and then discussed what would happen to the pop companies. Some believed that they would go
out of business with others believing that the companies would just increase the prices. The students in one group discussed that “nobody's going to pay for something that’s $4 for a can of pop or a tiny bottle of pop.” With another student believing, “Then soda companies would start going out of business as well.” Another student disagreed, “No, they'll jack up the price.” Another student concluded, “I think that the only people that'll actually [continue to buy SSBs] are people that are really rich and can afford anything or people that just don't know how to handle an addiction of theirs.”

Many students gave a variety of ways that they would drink water as a substitute for SSBs including plain water, water with flavored inserts, or water with fruit in it. Several students indicated that they would ease into it, such as adding less lemonade powder to their drink or gradually drinking less sweet drinks. One student suggested he would, “just buy the powdered lemonade and just add a little bit less lemonade, the powder every time.” Additionally, a couple of students mentioned having a reason to change such as “choir . . . you have to, for your vocal cords, drink a lot of water.”

Students seemed to believe that changing life patterns would be a way to decrease SSB consumption. Several students mentioned finding another activity to do instead of drinking SSBs. One student suggested, “You could find new healthier habits such as working out, or drinking water, or taking a run or a walk with your dog or pet.”

**Habit.** Students seemed to understand the concept of habit. One student even defined it as, “If you do it a lot, it would be habit.” As mentioned previously, a couple of students equated a SSB habit to a cigarette habit that adults have. The students made statements such as, “Pop is addictive just like grown-ups get addicted to cigarettes.”
When asked what would make decreasing SSBs hard, several mentioned their enjoyment of the drink. One student said, “The taste, the fact that you’re losing the taste.” Others mentioned being in the habit of buying it. One student explained, “Umm, for some stubborn people and some obese people they probably wouldn’t want to get away from [drinking SSBs]. And it would probably take a while for them to get used to something new.”

Students mentioned events as a large driver of habit. Holidays, including birthdays, Thanksgiving, Christmas, New Year’s Eve, the Fourth of July, and Memorial Day, were mentioned as occasions where students were likely to consume SSBs. One student summed it up saying, “I guess at, like, 4th of July parties and Memorial Day and stuff like that. So I guess that it would be at holidays.” Eating at a restaurant was also given several times as a place where SSBs are frequently consumed. Several students mentioned sports practices or times when they had been outside when it was warm as a time where they consume SSBs “to keep the electrolytes in our bodies.” Food triggers for drinking SSBs included cookies, chips, popcorn at the movies, fast food, and pie.

**Discussion**

This is the first known qualitative study based on the TPB exploring adolescent views on SSBs and SSB taxes as well as how adolescents view habit relating to SSBs. The summary of the qualitative results is shown in Figure 5. Students mentioned the same advantage, taste, as found in other studies (Grimm, Harnack, & Story, 2004; Kassem & Lee, 2004; Kassem, Lee, Modeste, & Johnson, 2003). Students recognized the same top three health risks of SSBs that adults (Zoellner et al., 2012b) and other students (Kassem & Lee, 2004; Kassem, Lee, Modeste & Johnson, 2003) mentioned in prior
research. The consumption levels, despite the health risks, indicate that though students understood the disadvantages of SSBs they, like adults, continued to drink them despite their negative attributes.

Figure 5. Overview of Results regarding SSBs and SSB taxes as Guided by the TPB

When asked about attitudes regarding SSB taxes, students saw many of the same advantages and disadvantages that adults might (Niederdeppe, Gollust, Jarlenski, Nathanson & Barry, 2013). They recognized that a tax on SSBs could decrease
consumption and provide the government with the money to provide needed services. They recognized some of the same disadvantages of price increases to individuals and businesses (Niederdeppe, Gollust, Jarlenski, Nathanson & Barry, 2013). Some of the disadvantages, however, in their minds, were more short term. For example, they did not like the idea that they would have to carry more change to drink a SSB, while adults are more likely to mention that the tax is regressive (Niederdeppe, Gollust, Jarlenski, Nathanson & Barry, 2013).

While mom and friends were frequently mentioned as referents for SSB consumption, other individuals mentioned by students were other family members and doctors. Most other studies of soda consumption used parents (Tak et al., 2011; van der Horst et al., 2007) and friends (de Bruijn, Kremer, de Vries, van Mechelen & Brug, 2007; van der Horst et al., 2007) as the assumed referents. This information on additional referents could be used in future research to find quantitative data on the percentage of students communicating with various individuals about SSB consumption or other health topics.

Students seemed to be conscious of their referents’ views on SSBs, often seeming to quote them verbatim and with the same tone used. The students in this study appeared willing to follow referents’ advice, but only if that advice was modeled by the referent and if it was delivered in the correct way. Parental modeling has also been found to impact SSB use by adolescents in other studies (de Bruijn, de Vries, van Mechelen & Brug, 2007; Grimm, Harnack & Story, 2004; Tak et al., 2011), with one study finding that children 8 – 13 years old were almost 3 times more likely to consume SSBs regularly if their parents did (Grimm, Harnack & Story, 2004). Personal stories, such as a parent
sharing how pop consumption contributed to her diabetes, or factual reasons, such as the choir teacher saying that dehydration from drinking pop would cause them to not sing as well, seemed to be the most effective in this study. These findings suggest that interventions that teach referents ways of talking to students about SSB consumption effectively and to model appropriate consumption could impact adolescent SSB consumption levels.

Many students indicated that the 20% SSB tax proposed by the researcher would make consuming SSBs “too expensive.” Some students, however, indicated that taxes would have to be higher than this, as high as 100%, to cause them to eliminate SSBs altogether. Similar results were found where cigarette taxes impacted most but not all adolescents (Fletcher, Deb, & Sindelar, 2009). While participants recognized that they sometimes bought their own SSBs, they most often referred to SSBs bought by their parents. They seemed to feel that while they were able to make these changes, without the change of the home environment, personal changes would be more difficult. This supports findings from previous research suggesting that the largest predictor of PBC was the availability of SSBs in the home (Kassem & Lee, 2004; Kassem, Lee, Modeste, & Johnson, 2003) and that PBC/self-efficacy is one of the top predictors of SSB consumption (de Bruijn and van den Putte, 2009; Tak et al., 2011).

Parenting practices, such as limiting access by telling adolescents which SSBs and how much of a SSB to consume, have been shown to be effective in lowering adolescent consumption levels (e.g., Grimm, Harnack & Story, 2004) unmediated by factors of the TPB (e.g., de Bruijn, Kremers, de Vries, van Mechelen, & Brug, 2007; van der Horst et al., 2007) and habit (e.g., van der Horst et al., 2007). However, these results are
inconclusive as a more recent study found that intention and habit did partially mediate the association between the home environment and SSB consumption (Tak et al., 2011). Additionally, over two-thirds of students report that they would consume another beverage if there were no soda in the home (Kassem & Lee, 2004; Kassem, Lee, Modeste, & Johnson, 2003). The students in the current study indicated that if parents changed the availability of the beverages in the home or what was kept cold, their consumption would decrease. This suggests that an intervention targeted for parents that instructs them about the placement and availability of SSBs in the home could be beneficial in decreasing adolescent SSB consumption.

Students in the current study seemed to consume less SSBs than average. According to 2013 data gathered by the CDC, 74.6% of ninth graders, the grade level closest to the students in the current study, consumed a soda daily (Centers for Disease Control [CDC], 2013). No student in the current study consumed pop at that level and only one student consumed another SSB at that level. Thus, students in the current study are considered to be low consumers of SSBs. The school district where this study was done has a wellness policy that forbids the sale of soft drinks before and during the school day (Summit Academy, n.d.), which may partially explain the lower SSB consumption and the student’s frequent mention of SSBs consumed at home or that were brought from home.

Students also seemed to understand the role that habit plays in SSB consumption. They stated changing routines, such as doing something else or drinking something else instead, would impact their consumption of SSBs. They often referred to other people as “addicted” individuals who would continue to drink SSBs despite taxes or the health
risks. While they recognized that they had a habit of drinking SSBs, they usually used the word “addicted” to refer to other people, not themselves. Many of the students did not seem to be habitual drinkers of SSBs as only one student reported drinking a SSB daily or more than once a day. Habit has been found to be stronger (e.g., de Bruijn and van den Putte, 2009; Tak et al., 2011) or as strong (e.g., van der Horst et al., 2007) as some of the factors of the TPB in predicting SSB consumption.

These findings should be interpreted with caution. Because participants were drawn from only one school these results may not be able to be generalized outside the school studied. Also, because this study did not tie quantity of the SSBs consumed to individual comments, it is impossible to differentiate between comments of those with high versus low consumption levels. Future studies could tie consumption levels to individual comments or group students of similar consumption levels into the same focus groups. This study could also be used to guide a quantitative study on this topic.

**Summary**

Students were able to identify many of the same advantages and disadvantages of both SSBs and SSB taxes that adults could. The advantages for SSBs included taste with the disadvantages being the amount of sugar and the diseases that could occur because of this increased sugar intake. Students saw the advantage of a tax on SSBs as more money for the government and decreased consumption. Most students intended to decrease personal consumption with a tax though some students stated that a tax would have to be as high as 100% in order for them to stop buying SSBs. They saw the personal disadvantage of having to carry more change to pay for the tax as a disadvantage as well as that a tax could economically impact an individual that is “addicted” to SSBs. The
main referents for students were mom, friends, and their doctor. Students were willing to consume less SSBs if the referents modeled low consumption levels and delivered the message to reduce consumption in a nonjudgmental way.

Students understood that an individual’s personal consumption could influence their recommendations for adolescent consumption. Students realized that control over their personal consumption was within their power, but recognized that having SSBs around the house, something outside of their influence, would make lower consumption difficult. Habit was a concept that was understood by the students. They could not only define it, but also they understood how it could make decreased consumption both easier and more difficult. Students in this study seemed to be able to look at a complex issue such as SSBs and SSB taxes and come to many of the same conclusions as adults.
References


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consumption among adolescents: Explorations of mediation by individual cognitions and habit strength. *Appetite, 56*, 503-510.


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Appendices
Appendix A: Figure 3 Permission

Of course you may do that for your thesis. Barbara

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-----Original Message-----
From: Claire.Krukowski [mailto:ckrukowski@summit-academy.com]
Sent: Saturday, May 9, 2015 11:34 AM
To: Rimer, Barbara K.
Subject: Re: reproduce

Dr. Rimer,
I am sorry to bother you, but I need to have an answer on whether or not I can reproduce the figure of TBP in order to resubmit my thesis to my committee. Am I correct in asking you for permission to do so?
Thank you,
Claire Krukowski
Appendix B: Institutional Letter

SUMMIT
ACADEMY NORTH
Middle School
18601 Middlebelt, Romulus MI 48174
734-655-1712 Phone 734-655-1729 Fax

October 28, 2013

Human Subjects Committee:

As principal of Summit Academy Middle School, I give Claire Kukowski permission to conduct three focus groups with the students at the school to gather information of her master’s thesis. I understand that in these focus groups she will ask questions about sugar sweetened beverage consumption. In addition, she will gather demographic information and information about the amount of sugar sweetened beverages that the students consume through surveys. The information gathered in the focus groups as well as the surveys will be used in the writing of her thesis through identifying information such as names will not be used.

The students will participate in the focus groups voluntarily and will sign a form stating that they understand the benefits and risks of the study. Parents/guardians will give consent as well through signing of a consent form.

If you have any questions or concerns, please feel free to contact me at (734) 655-1712 or ajenkins@summit-academy.com.

Sincerely,

Alicia Jenkins
Principal
Summit Academy North Middle School
Appendix C: Opt Out Letter

Dear Parent/Guardian:

Your child’s classroom has been selected to take part in a research study about sugar sweetened beverage consumption (such as pop) and adolescent views on a potential tax on these types of beverages. Your child will not be able to participate in this study without your signed consent; however, if you would like your child to not receive an invitation to participate, you can remove him/her from the process at this time. Below are some frequently asked questions that you may have.

- **If my child did participate in the study, what would he/she need to do?**
  Your child would be asked to stay after school for an hour to answer questions about sugar sweetened beverages, such as pop, and his/her thoughts about a potential tax on these types of beverages. Your child will also be asked to give information about how much and how often he/she drinks different sugar sweetened beverages on a survey. He/she will also be asked to give demographic information, such as grade, gender, and race.

- **Can I decide later that I do not want my child to participate?** Yes. You can decide any time up until the discussion begins that you don’t want him/her to participate. If you decide to have your child participate, at a later time you will need to give signed permission for him/her to be part of the research study.

- **If I want my child to participate, what do I need to do at this time?** Nothing. If you do not return this form within ten days, your child will receive an invitation to participate. At that time, you can decide if you continue to want your child to participate.

- **If I don’t want my child to participate in the research study, what do I need to do?** Sign this form below. You can decide between two choices what you would like your child to do when the rest of the class is learning about the study.

- **What if my child does not want to participate?** Your child cannot participate without his/her agreement as shown by his/her signature.

- **Will my child be penalized if I choose to have him/her not participate?** No. Your child will not be penalized. Participating is completely voluntary.

- **Can I receive a copy of the results?** Yes, if you are interested in reading the results, you may request a copy of the thesis or a summary of the results when the thesis is complete. Your child’s name or identifying information will not be part of either of these documents.
Who do I contact if I have any questions about this study? You can contact Claire Krukowski, the director of this research study, by email at ckrukow@summit-academy.com or by phone from 7:30 until 9:30 a.m. at (734) 955-1712 or from 9:30 a.m. to 4:00 p.m. at (734) 789-1428. You may also contact Dr. Kathleen Conley, the committee chair, by phone at 734-487-2808 or by email at kconley@emich.edu.

I have read this document above and do NOT want my child to receive an invitation to participate in this research study. Instead I would like my child to go in the hallway while the study is being explained and permission slips are being handed out.

I have read this document above and do NOT want my child to receive an invitation to participate in this research study. However, my child can stay in the classroom while the study is being explained. I understand that my child will not receive a permission slip to participate.

______________________________   ________________
(signature)        (date)
Appendix D: Active Parental Consent

Eastern Michigan University School of Health Promotion and Human Performance

Active Parental Consent Form

The group discussion or focus group that your child has the chance to participate in is part of a research study that will help us learn more about adolescent thoughts on a hypothetical beverage tax on sugar sweetened beverages, such as pop. Information on the amount of these beverages that your child consumes as well as demographic information will also be gathered for this research study. This data will be used in the writing of a master's thesis. This thesis could be posted on the Internet, printed in a professional journal or shared at a conference. Summit Academy will not be identified by name and student names will never be used by the graduate student during or after the focus group. Your child’s participation is completely voluntary.

WHAT WILL HAPPEN? If you approve, your child will participate in a research discussion group after school.

- The group will take place in a classroom in Summit Academy Middle School with about ten other students from the school.
- The discussion group will take place after school. This will be a one-time event and will last for about an hour. They will not miss instructional time. If you choose not to have your child participate, normal after school plans will be followed.
- A health snack and a break will be given before the start of the discussion group.
- Your child will be given some information about sugar-sweetened beverages like pop and a possible tax on the drinks.
- The researcher will then ask your child questions about sugar sweetened beverages and a possible tax on these drinks. Your child will be asked to share their thoughts on these topics.
- They will also be asked about how much and how often they drink beverages such as pop.
- They will be asked for information such as your gender, grade and race. They will have the choice not to answer any question that makes them uncomfortable. They may leave the discussion group at any time for a break.

A graduate student from Eastern Michigan University (EMU) designed and will facilitate the focus group with the support of a note taker. These groups will also be audiotaped. Audiotapes will help the researcher remember all of the important viewpoints shared by students during the discussion. The tapes will be destroyed as soon as the study is completed. All materials related to the study will be kept in a locked cabinet when not being used. This cabinet will only be able to be opened by the researcher.
WILL THE GRADUATE STUDENT REPORT WHAT MY CHILD SAYS IN THE GROUP IN A WAY THAT CAN BE CONNECTED TO MY CHILD?
- NO. The graduate student will not use your child’s name during the focus group or after the group discussion is over. Your child will not be asked their name during the discussion group and will be assigned a number that will be used when referring to your child in any notes taken or when data is analyzed. In the future, your child will not be identified using any identifying information. Instead a number will be used to identify your child. Information about your child may also be combined with the other students' data. However, your child’s name will never be used as part of this data.

ARE THERE ANY RISKS FOR PARTICIPATION IN THE FOCUS GROUP?
- There is a risk that other students will talk about what is said in the group with others. However, students will be asked not to talk about the focus group discussion with others. It is possible that your child will be exposed to bullying or peer pressure following this focus group or because of his/her participation in this group. There is also the risk that overweight people may be talked about in a negative way. The researcher will take every precaution to prevent this from occurring. Students will be asked and expected to respect others during and after this discussion. The school’s anti-bullying policy will be in place both during and after the discussion group, and the researcher will remind students of the policy and how to seek help if needed. It is possible that your child may find the group discussion to be tiring or stressful. In order to reduce the risks of this, students will be given snacks and a break between the end of the school day and the start of the discussion group. Your child will not have to answer any questions that are stressful or make your child uncomfortable in any way.

ARE THERE ANY AdvANTAGES TO MY CHILD PARTICIPATING?
- While there might not be any benefits to participation, your child's opinion will be heard. They will have the opportunity to represent adolescents by expressing their views on the topic.

IS MY CHILD REQUIRED TO ANSWER ALL THE QUESTIONS ASKED?
- Your son or daughter may choose not to answer any questions that make him/her uncomfortable for any reason without penalty. Your child may leave the focus group at any time if they choose. There will be no penalty or punishment if your child chooses not to participate for the entire discussion.

TOKENS OF THANKS
- Your child will receive a jean and hoodie pass for participating in the discussion group.
- Your child will have the opportunity to have snacks before the discussion group begins.

ABOUT THE RESULTS OF THE STUDY:
An EMU graduate student will compile the data to be used in writing a master's thesis. This thesis or a summary of the results will be available, upon completion, to all interested parties by contacting Claire Krukowski as indicated below.

WHO CAN I ASK IF I HAVE ANY QUESTIONS? If you have any questions you can call: Claire Krukowski  Phone: 734-955-1712 (7:30-9:00) or 734-789-1428 (9:30-4:00) or email ckrukow@summit-academy.com. You may also contact Dr. Kathleen Conley, the committee chair, by phone at 734-487-2808 or by email at kconley@emich.edu.

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee (UHSRC) for use from April 22, 2014 to April 22, 2015. If you have questions about the approval process, please contact Jayne Yatczak by email at jyatczak@emich.edu or by phone at 734-487-0461.

If you want your child to participate in this focus group, please sign below and return one copy of this form to your child’s first hour teacher by (month date), 2014. You may keep one copy for your records. (You may decide at any time, even after you sign this form that you don’t want your child to participate in the discussion group. You can stop your child from participating by contacting Claire Krukowski as detailed above.)

I, ___________________________________________ give permission for my child, ______________________, to participate in a research study discussion group as detailed above.

Parent or Guardian Signature Date
Appendix E: Student Recruitment Script

Your class was randomly selected from the students at Summit to participate in a discussion group that will help me write a research paper for school. The discussion will be about a tax that could happen in Michigan on sugary drinks like pop. You will also be asked about how much and how often you drink beverages like pop. I will also ask questions about your grade, whether you are a boy or a girl and your race. There will be about ten other middle school students there too. It is totally up to you if you would want to participate, but I would love to hear your thoughts. You would have a chance to represent middle schoolers’ views on this topic. There would be snacks provided before we started as a thank you for your time. You will also receive a jeans and hoodie pass. Do you have any questions about this? pause

I am going to give each of you a letter for your parents and a permission slip for them to sign. There is also a note in there that you would need to sign if you are interested in participating. Both you and your parents need to say it is OK for you to participate for you to be part of the discussion group.

I am going to pass out the forms now for you to take home to your parents. Please return them to ____________ who will give them to me. I would need these forms back by (date 10 days later) if you and your parents want you to participate.
Appendix F: Guardian’s Letter

Date here

Dear Parents/Guardians,

Your child’s classroom has been randomly selected to receive invitations to participate in a research study discussion group about sugar-sweetened beverages, such as pop or energy drinks. As part of this discussion group, your child will also be asked demographic information and information about the amount of sugar sweetened beverages that he/she consumes. This information will be used in the writing of my master’s thesis at Eastern Michigan University. There are details about the study on the attached form. If your child is interested in participating and you would like them to participate, please return one of the copies of the attached forms to your child’s homeroom teacher. You may keep the second copy of the forms for your records. If you have any questions about the study or your child’s possible participation in the study, please feel free to contact me.

Sincerely,

Claire Krukowski

Summit Academy Teacher

EMU Masters Student

Claire.believes@gmail.com; 734-955-1712
Appendix G: Student Assent

Eastern Michigan University School of Health Promotion & Human Performance

Student Assent Form

ABOUT THE STUDY:
- You have the chance to be part of a group discussion. This one-hour discussion group is part of a research study and will take place after school. During the discussion we will talk about a tax that could happen in Michigan on sugary drinks like pop. We would like to hear your thoughts about this topic. Whether or not you are part of this group is completely up to you. If you choose not to be part of the group, on the day of the discussion you will do whatever you normally do after school.

WHAT WILL HAPPEN?
- The group will take place in a classroom in Summit Academy Middle School with about ten other students from the school.
- We are asking you to share your thoughts after school. We will meet one time and the meeting will last for about an hour.
- You will be given a snack before this discussion and a chance to talk to other students.
- The researcher will then give you a little bit of information about sugar-sweetened beverages like pop and a possible tax on the drinks.
- The researcher will then ask you questions about sugar-sweetened beverages and a possible tax on these drinks. You will be asked to share your thoughts on these topics.
- You will also be asked about how much and how often you drink beverages such as pop.
- Also, you will be asked for information such as your gender, grade and race.
- You will have the choice not to answer any question that makes you uncomfortable. You may leave the discussion group at any time for a break.

WILL THE GRADUATE STUDENT REPORT WHAT I SAY IN THE GROUP IN A WAY THAT CAN BE CONNECTED TO ME?
- NO. Your name will not be used by the graduate student during the group or after the group is over. You will be assigned a number instead. What you say will be written without using your name or any other information that would tell the reader who said the quote. The information might also be combined with the other students’ data. You can read what I write or a summary of the information by emailing me at ckrukow@summit-academy.com or by calling me at 734-789-1428.

ARE THERE ANY RISKS IN BEING IN THIS STUDY?
- There is a risk that other people in the group will share what is said. We will ask you, and the other students in the group, not to talk about our discussion after the group is over. It is also possible that during the focus group or because of this
focus group you might be exposed to peer pressure or bullying. Also, because of the topic of this group, people may talk about people who are overweight in a negative way. However, bullying won’t be allowed in the group just like it isn’t allowed in the classroom. You will be asked and expected to behave in a respectful way both during and after the discussion group. It is also possible that being part of this group will be tiring or stressful. To help you enjoy being part of the discussion group, we will have a break before the end of school and the discussion group with snacks.

AM I REQUIRED TO BE PART OF THIS GROUP?
  o  NO. You are not required to be part of the group. There is no penalty for not being part of the group.
  o  You may stop and leave the group at any time. You can also choose not to answer any of the questions.

WHY SHOULD I BE PART OF THIS GROUP?
  o  You will know that your thoughts on this topic have been heard. You will have the chance to represent teens by sharing your views on the topic.

TOKENS OF THANKS
  o  You will receive a jeans and hoodie pass for participating in the focus group.
  o  You will have the opportunity to have healthy snacks before the focus group.

WHAT DO I DO IF I HAVE QUESTIONS?
  o  If you have any questions, you can ask your teacher who can contact me.
    Also, you can call me: Claire Krukowski (734) 955-1712 or email me at ckrukow@summit-academy.com. You may also contact Dr. Kathleen Conley, the research study committee chair, by phone at 734-487-2808 or by email at kconley@emich.edu.

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee (UHSRC) for use from April 22,2014 to April 22, 2015 If you have questions about the approval process, please contact Jayne Yatczak by email at jyatczak@emich.edu or by phone at 734-487-0461.

If you sign below, you indicate that you understand the information above and you want to be part of this study. Please return one signed copy of this form to your homeroom teacher if you want to participate in the research discussion group. You may keep the other copy. You can decide at any time that you do not want to be part of the group, even after you sign this form. If you sign the form and change your mind about participating please email or call Claire Krukowski to let her know. There will be no penalty for changing your mind.

Student Signature  Date
Appendix H: Student Reminder Script

Remember, if you are interested in participating in the discussion group with Ms. Krukowski about your views on sugar-sweetened drinks you will need to bring back the permission slips by (date here). You need to return two forms, one signed by you and one signed by your parent. Remember, whether you are part of the discussion group is up to you and your parents. You only need to return the form if you want to participate.
Appendix I: Student Reminder Postcard

Dear (student name),

Thank you so much for agreeing to be part of the discussion group on sugar sweetened beverages such as pop. This group will meet on (date) after school in (classroom location). There will be snacks and a chance to talk to other students between 2:55 and 3:15. The group will start at 3:15. Please be on time. If you are no longer interested in being part of this group or if this time doesn’t work for you, please tell your teacher who can contact me. Also, you can contact me at ckrukow@summit-academy.com or by phone at 734-789-1428.

Thank you again,

Ms. Krukowski
Appendix J: Human Subjects Review Letter

Date: Tue Apr 22 2014
Subject: MS #1126 - College of Health and Human Services Human Subjects
From: Jayne M Zyczak
Decision: Accept Submission

Re: CHHS-HSRC MS#1126 Approval Date: April 22, 2014

Dear Claire,

Congratulations! After careful review, your proposal, "A Qualitative Study of Adolescent Views of Sugar-Sweetened Beverage Taxes" has been accepted by the College of Health and Human Services Human Subjects committee. We stress that you do not stray from your proposed plan.

Renewals: Full Board review protocols need to be renewed annually. If the project is continuing, please submit the Human Subjects Continuation Form prior to the approval expiration. If the project is completed, please submit the Human Subjects Study Completion Form (both forms are found on the UHSRC website).

Revisions: If changes are made to a protocol, please submit a Human Subjects Minor Modification form or new Human Subjects Approval Request Form (if major changes) for review (see UHSRC website for forms). Problems: If issues should arise during the conduct of the research, such as unanticipated problems, adverse events, or any problem that may increase the risk to human subjects and change the category of review, notify the CHHS-HSRC office within 24 hours. Any complaints from participants regarding the risk and benefits of the project must be reported to the CHHS-HSRC.

Please use the CHHS-HSRC number listed above on any forms submitted that relate to this project, or on any correspondence with the CHHS-HSRC office. The current version of your submission is available here: http://commons.emich.edu/cgi/preview.cgi?article=1126&context=chhs_hs

Good luck with your research effort. If we can be of further assistance please feel free to contact us. Thank you for your cooperation.

Sincerely, Jayne Zyczak, PhD, CTRL Chair, CHHS-HSRC
Appendix K: Focus Group Script

**Entering (10 minutes):**

*As the students enter the room, they will be asked if they would like some refreshments. After 10 minutes participants will be given a SSB and demographic survey by the note taker and moderator.*

*(Moderator notes: words in italics as well as underlined words should not be read to the participants. Probes should be used if the students aren’t responding or if they are off track. Probes don't need to be used if the participants answer those questions without prompting.)*

**Introduction and Procedure (3 minutes):**

Thank you for meeting with me today after school. My name is Claire Krukowski and helping me today is (____________). I asked you to come today to give me some information about how you feel about sugar sweetened beverages, like pop, and a possible tax on these types of drinks. I am doing this as part of a research study that will be used to write a paper, called a thesis, for school.

Before we get started, I want to go over some rules and let you know what to expect.

- I will be asking you some questions about different beverages that you drink. There will be no right or wrong answers to these questions. I just want to hear what you think.
- Because there are no right or wrong answers and because I want to hear what you think, I won't be sharing my opinions or commenting on what I think of your ideas. I might however ask more questions to help understand something that you said.
- It doesn't matter if you agree or disagree with the other people in the group. Everyone's opinions are important. It is certainly OK to disagree (and I expect it
to happen), however, I will ask you to be respectful of other people's opinions. Just be polite.

● Because of what we are talking about today, it is possible that you will be talking about people that are overweight. I ask that when you talk about people who are overweight that you use the word overweight and that you are respectful when you talk about a person’s weight.

● Today's discussion will be recorded. This is to help me remember everything that was said. But when I use what is said in my paper, names will not be used. What you say today I am going to keep confidential. I won't share what you say with your teachers, parents, the principal or anyone else. I ask that you don't share what other people say here either.

● Since this is a discussion not a class, you don't need to raise your hand so that I can call on you. However, I need you to talk one at a time because the tape recorder records best when only one person is talking. I want to hear what everyone has to say.

● Also so I can hear what you are saying, I am going to ask you not to clean up your snacks until we are all done talking. The noise of cleaning up will make it hard for the tape recorder to record what is being said.

● I am going to ask that you put away and turn off your I Pod, cell phones and everything else that rings or makes noise so that they don't disturb the group.

● You can take a break at anytime in the group without asking. I just ask that you leave and return quietly.

**Opening (2 minutes):**

*Moderator’s notes: Turn on tape recorder.*

The first thing that we are going to do is go around the table and have everyone share their favorite drink.

*Moderator's note: Make sure that everyone is invited to respond. Turn off tape recorder.*
Introduction of SSBs (5 minutes):

The topic of the discussion today is going to be sugar-sweetened beverages. Sugar sweetened beverages include things like pop, juice that isn't 100% fruit juice, sweetened tea, coffee with added sugar or sugar syrups, sports drinks and energy drinks. They do not include beverages like milk, water, diet pop or sugar-free syrups for coffee. I am going to give you a piece of paper with different sugar sweetened beverages like the ones that I am talking about. I want you to circle the ones that you drink more than once a week.

Moderator's Notes: Make sure that every student has a copy of the handout with different SSBs and a writing utensil. Collect the SSB and demographic survey at this time.

Moderator's Notes: When the students are finished, tell them how to use the worksheet during the day's discussion.

I am going to have you keep those sheets because as I am talking today, whenever I mention sugar-sweetened beverages, I want you to think of these drinks that you circled.

Moderator's Notes: Show the students the containers of different SSBs.

On these containers the red pieces of paper show how much each sugar sweetened beverage costs now at the gas station. Today we are going to pretend that there is a new tax on these drinks and that the cost goes up. The green pieces of paper show how much each sugar-sweetened beverage would cost with a 20% tax. As you can see there is no change on things like diet pop and water, because remember—they are not sugar-sweetened beverages. Today we are going to talk about your thoughts about a change in the prices of sugar-sweetened beverage.

Moderator's notes: Turn on tape recorder.
1. **Attitudes (5 minutes):**


   *Probe:* 1.A.1. What are some positive things about SSBs? *Wait for responses.*

   *Probe:* 1.A.2. What are some negative things about SSBs? *Wait for responses.*

1.B. What do you think about a new tax on sugar-sweetened beverages like I just showed you? *Wait for responses.*

   *Probe:* 1.B.1. What would be the good things about a tax like this? *Wait for responses.*

   *Probe:* 1.B.2. What would be the bad things about a tax like this? *Wait for responses.*

2. **Subjective Norms (15 minutes):**

2.A. Who are some people that you talk to about health related things? *Wait for responses.*

   *Moderator's Notes: Write the categories of the individuals mentioned on the white board.*

2.B. What do you think that the people written on the white board think about adolescents drinking SSBs? *Wait for responses.*

   *Probe:* 2.B.1. What do you think that _________ *(a category on the white board not mentioned by the students)* would think about adolescents drinking SSBs?
2.C. How do you think these people's opinions might change about teens drinking SSBs if the tax went up? *Optional* Wait for responses.


2.D. Now I would like you to think about which of the people written on the board might influence your SSB buying. Whose opinions about SSB buying, if anyone, would most likely change the amount of SSBs that you buy? *Wait for responses.*

_Probe:_ 2.D.1. Why is their opinion important to you? *Wait for responses.*

2.E. Whose opinions, if anyone, would make you do the opposite of what they recommend? *Wait for responses.*


### 3. Intentions (5 minutes):

Now we are going to talk about what you think you would do if there was a sugar-sweetened beverage tax like this in real life.

3.A. If the price of sugar-sweetened beverages went up 20% like is shown on the bottles over there *(indicate bottles)*, what would you do? *Wait for responses.*

_Probe:_ 3.A.1. If you would still buy sugar-sweetened beverages, why would you make that decision? *Wait for responses.*

_Probe:_ 3.A.1.a. How high would a tax have to be before it might change your behavior? *Wait for responses.*
Probe: 3.A.1.b. If the tax was that high, what would you do then? *Wait for responses.*

4. Perceived Behavioral Control (5 minutes):

4.A. If at some point, SSBs became too expensive to buy, what would you do? *Wait for responses.*

4.B. What other types of drinks or food might you buy instead, if any?

4.B.1 Probe: Is milk/water/unsweetened tea or unsweetened coffee a drink that you might substitute? Why or why not?

4.C. What would help make a change like that easy? *Wait for responses.*


5. Habit (if not addressed under PBC prompt) (5 minutes):

Habit sometimes makes us do things without really thinking about them. For example, many people get up in the morning and brush their teeth without really making the decision to do that everyday. It is just something that is part of their morning routine.

5.A. Are there times that habit influences you to drink sugar-sweetened beverages? *Wait for responses.*

5.A.1.Probe: Are there times of the day/week/year that you almost always have a SSB? *Wait for responses.*
5.A.2 Probe: Are there certain foods that you usually drink a sugar-sweetened beverage with? *Wait for responses.*


5.B. Are there ways that habit might make it difficult to drink less or no sugar sweetened beverage? *Wait for responses.*

5.C. Are there ways that habit might make it easy to drink less or no sugar sweetened beverages? *Wait for responses.*

6. **Wrap Up (5 minutes):**

6.A. Is there anything that you want to share that you thought of after we talked about it, or that you want to make sure that I hear before we end today? *Wait for responses.*

Thank you very much for your help today. What you shared was very interesting and taught me a lot about your thoughts on this topic. I will be collecting the sheet with the pictures of the different drinks on it before you leave the room. Please do not share what you heard today once you leave this room. This includes not teasing or bullying anyone because of what they said in today’s group. If you are bullied because of something that happens in this focus group, I hope that you will come to me or another teacher and tell them what is happening. As you know, we have a no bullying policy here so bullying for any reason is not allowed.

**Moderator Notes: Turn off tape recorder**
Appendix L: Demographic Survey

A Little About You
Directions: Circle the answer that best describes you.

Gender:     Male         Female

Race:     African-American/Black       White/Caucasian       Latino/Hispanic         Asian
I would rather not say.           Other: ________________
Appendix M: SSB Screener

Directions: Circle the answer that best matches the number of times that you drink the beverages below.

<table>
<thead>
<tr>
<th>How often do you drink regular pop (including Slurpees™), not including diet pop?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 to 2 times per week</td>
</tr>
<tr>
<td>1 time per day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you drink diet pop?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 time per month</td>
</tr>
<tr>
<td>2 to 3 times per month</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you drink sweetened coffee drinks (not including sugar-free sweeteners or syrups)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 time per month</td>
</tr>
<tr>
<td>2 to 3 times per month</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you drink energy drinks like Monster™?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 time per month</td>
</tr>
<tr>
<td>2 to 3 times per month</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you drink sports drinks?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 time per month</td>
</tr>
<tr>
<td>2 to 3 times per month</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you drink milk (not in your cereal)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 time per month</td>
</tr>
<tr>
<td>2 to 3 times per month</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you drink other sweetened beverages like sweetened tea, juice boxes, punch or lemonade?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 time per month</td>
</tr>
<tr>
<td>2 to 3 times per month</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you drink water?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never or rarely</td>
</tr>
<tr>
<td>1 time per month</td>
</tr>
<tr>
<td>2 to 3 times per month</td>
</tr>
</tbody>
</table>

Directions: Think about the last time that you drank the beverages listed below. Then pick the answer the best matches the amount that you drank.
The last time that you drank pop, including Slurpees™, but not diet pop, how much did you drink?

<table>
<thead>
<tr>
<th>I don't drink this.</th>
<th>One container or less</th>
<th>More than one container</th>
</tr>
</thead>
</table>

The last time that you drank diet pop, how much did you drink?

<table>
<thead>
<tr>
<th>I don't drink this.</th>
<th>One container or less</th>
<th>More than one container</th>
</tr>
</thead>
</table>

The last time that you drank sugar sweetened coffee drinks, how much did you drink?

<table>
<thead>
<tr>
<th>I don't drink this.</th>
<th>One container or less</th>
<th>More than one container</th>
</tr>
</thead>
</table>

The last time that you drank energy drinks like Monster™, how much did you drink?

<table>
<thead>
<tr>
<th>I don't drink this.</th>
<th>One container or less</th>
<th>More than one container</th>
</tr>
</thead>
</table>

The last time that you drank sports drinks, how much did you drink?

<table>
<thead>
<tr>
<th>I don't drink this.</th>
<th>One container or less</th>
<th>More than one container</th>
</tr>
</thead>
</table>

The last time that you drank milk (not on your cereal), how much did you drink?

<table>
<thead>
<tr>
<th>I don't drink this.</th>
<th>One container or less</th>
<th>More than one container</th>
</tr>
</thead>
</table>

The last time that you drank other sweetened beverages like sweetened tea, juice boxes, punch or lemonade, how much did you drink?

<table>
<thead>
<tr>
<th>I don't drink this.</th>
<th>One container or less</th>
<th>More than one container</th>
</tr>
</thead>
</table>

The last time that you drank water, how much did you drink?

| I don't drink this. | One container or less | More than one container |
Appendix N: Brief Dietary Screener Permission

Claire,
You don't need my permission for this adaptation; if you write up your results, just be sure to say that the screener was adapted from its original form (and site the source of the original screener).
Melissa Laska

On 5/6/13 4:23 AM, Claire.Krukowski wrote:
Ms. Laska,
I have adapted the screener somewhat and would like permission for this adaption. I have added energy drinks to the list of SSB, changed the form to only use the term pop (the regional word) and am testing the level of all SSB consumption, not just soda/pop. May I continue to have permission?
Thank you,
Claire

On 4/29/13 9:53 AM, "Melissa Laska" <mnlaska@umn.edu> wrote:
Claire,
Yes, you have my permission to use this. Please just cite our paper in any report or publication that comes from your work.
Best of luck,
Melissa Laska

On 4/28/13 7:11 AM, Claire.Krukowski wrote:
Dr. Nelson,
I would like your permission to use the beverage section of your dietary screening that you and Dr. Lytle developed for your 2009 article. I would be distributing the beverage part of the survey to student in my 3 focus groups. May I have your permission to use it?
Thank you,
Appendix O: SSB Worksheet

Examples of Sugar Sweetened Beverages

Slurpees                     Juice with added sugar (lemonade, fruit punch, etc.)
Pop                           Coffee with sugar or sugar syrups
Sports drinks                 Energy drinks
Appendix P: Note Taker Form

Date:                      Start Time:
Number of participants:   End Time:
Moderator:                Notetaker:

Seating Chart: (Make a chart indicating the participants and their numbers. Use the chart to identify the students as you take notes.)

What is your favorite drink?

Attitude Prompt: What are your thoughts about a SSB tax?
Subjective Norm Prompt: Who would think that a tax on SSBs would be a good idea?

Subjective Norm Prompt: Who would think that a tax on SSBs would be a bad idea?

Subjective Norm Prompt: Who wouldn't care or you don't know where to put them?

Intention Prompt: If the price of SSBs went up the way that we talked about earlier, what would you do?
Perceived Behavioral Control: What would make a change easy? Hard?

Habit Prompt: Are there times that habit influences SSB consumption?

Other comments:
Appendix Q: Debriefing Form

Debriefing Form

Date:

Moderator:

Note-taker:

What themes immerged?

How did this group contradict other groups?

What was confusing or unclear?

What new information did we learn?
What was remarkable about the behaviors of individuals or the group?

What problems did you encounter (logistics, behaviors, etc.)?