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Etiology of Water Quality Perceptions and Beverage Preferences of Black Children and Adolescents

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This is to certify that the doctoral dissertation by

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Walden University
2018

Abstract

Water Quality Perceptions and Beverage Preferences of Black Children and Adolescents

by

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MA, Saint Mary's University of Minnesota, 2008

BS, AME Zion University, 1998

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The purpose of this phenomenological qualitative study was to examine the etiology of water quality perceptions and beverage preferences of Black children and adolescents, which addressed a current gap in the literature on this topic. This study was guided by Festinger's social comparison theory, which supports the notion that children and adolescents' perceptions and preferences are influenced by their social network and those with whom they have a close association. In this study, children and adolescents' water quality perceptions were examined as well as the development and factors affecting those perceptions. Whether social factors such as peer or parental influence have an impact on children and adolescents' beverage consumption were also investigated. The study participants (n = 20) were recruited from two cities in a Midwestern state for semi-structured interviews from which information was coded into themes. Participants who met the inclusion criteria were Black youths between the ages of 9 to 18 years. The data were analyzed using latent content analysis with open and axial coding.The key findings in this study indicated that Black youths had negative perceptions of tap water quality and positive perceptions of bottled water, and stronger preferences for sugar-sweetened beverages than for water. These perceptions and preferences emanated from their parents and were also influenced by their peers, tastes, and the social environment. This study's implications suggest the need for improved health literacy through programs that educate participants in making informed decisions to impact the quality of health; this will also increase the overall health of society in terms of productivity and economic growth.

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Dedication

In loving memory of my mother, who died during the civil crisis in Liberia, and to my dead father, uncles, and brother. I regret that they will not be around to celebrate this great achievement. Most importantly, to my wife Nmano Johnson and children Diana Johnson, Meach Johnson, and Forshana Johnson, that stood by me during the challenging and difficult times. A special thanks to my elder brother S. David Mulsumo, who built my academic foundation and always encourages me that the sky is the limit.

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Chapter 1: Introduction

In this qualitative study, I examined the etiology of water quality perceptions and beverage preferences among Black children and adolescents residing in two cities from a Midwestern state. In 2010, the U.S. Census Bureau (2015) stated that the population of a city in a Midwestern state was 75,781. Of this population, Blacks or African Americans constituted 18,480, and 21,982 were children and adolescents under 18 (U.S. Census Bureau [USCB], 2015). Blacks constituted the largest racial group in the city, increasing from 23% in 2000 to 37% in 2010 (Metropolitan Council, 2013). Currently, as documented by the Metropolitan Council (2013), Brooklyn Park, particularly the Zine Avenue Corridor and its surroundings, are among the cities in a Midwestern state considered to be a racially concentrated area of poverty.

The estimated population of Brooklyn Center, based on the 2010 census, was 30,104, out of which 46% was White and 25.9% was Black or African American (USCB, 2015). The poverty rate in the City of Brooklyn Center (2016) is 19%, as compared to 13% in Hennepin County (USCB, 2016). The concentration of poverty exists in the entire Brooklyn Center; however, it is especially clustered around the northwest and northeast areas of the city (Hennepin Community Design Group, 2014). Health disparities are a serious problem affecting nonwhite populations, such as those residing in the racially concentrated area of poverty region (Hennepin Community Design Group, 2014).

This research was focused on areas that are predominantly Black or African American. The decision to focus on Black children and adolescents' perceptions and preferences is based on suggested evidence that negative perceptions of tap water safety

are common, particularly among minority and low socioeconomic status populations (Onufrak, Park, Sharkey, & Sherry, 2013). Moreover, these perceptions may contribute to a lower intake of water and greater consumption of sugar-sweetened beverages (SSBs; Onufrak et al., 2013). Furthermore, the issue of obesity and associated chronic diseases among children and adolescents are major public health problems and provide a reason for conducting this study (Nielsen et al., 2015; Zafar Janjua, Mahmood, Aminul Islam, & Goldenberg, 2012). Obesity is common among minority and disadvantaged populations possibly due to family socioeconomic status, low income, parental education, and parental occupation (Onufrak et al., 2014; Youlian et al., 2011).

This study provides a better understanding of the factors that shape Black children and adolescents' perceptions of water quality and how these affect their beverage choices. The findings from this study may result in the creation of a health literacy program that will educate participants in making informed decisions that impact their quality of health (Zarcadoolas, Pleasant, & Greer, 2005). In addition, increasing the quality of health is not only beneficial to individuals but society, especially regarding productivity and economic growth.

In the remainder of this chapter, I will summarize relevant literature related to the topic, and I will present and discuss the problems based on established evidence as well as the focus of the study. The research questions to be answered over the course of this study will also be presented. Each question incorporates components of the purpose statement and the constructs from the social comparison theory (SCT). The SCT and its constructs will be described with an emphasis on how the theory guided the study and

helped explain the examined phenomenon. The concept regarding the perceptions of Black children and adolescents about water quality and beverage preferences are presented in the theoretical framework. The nature of the study will be presented and include a discussion of the chosen qualitative research design, a brief description of the study participants, the concepts to be examined, and techniques for analyzing gathered data. Finally, the chapter ends with a discussion of the definitions, assumptions, scope, delimitations associated with study, biases, and transferability of findings. The value of this research is discussed in the Significance section.

Background

Water quality perceptions and beverage preferences among children and adolescents are linked to significant public health issues. Below, I synthesize the scholarly literature on the development of water quality perceptions and beverage preferences among Black children and adolescents and identify research gaps.

Water Quality Perceptions

Several researchers have been focused on water quality perceptions and beverage preferences among diverse populations (Huerta-Saenz, Irigoyen, Benavides, & Mendoza, 2012; Teillet, Urbano, Cordelle, & Schlich, 2010). For example, Huerta-Saenz et al. (2012) studied 208 study subjects, with African Americans constituting 79% of that number, and found that 59% drank tap water, 80% drank bottled water, and among those drinking tap water, 53% drank unfiltered, while 30% drank filtered water and 16% boiled water. Huerta-Saenz et al. showed that bottled water was the choice of beverage for participants who were predominantly African American. They revealed that parents

introduced the intake of bottled water to their children at infancy (Huerta-Saenz et al., 2012). Furthermore, bottled water was perceived to taste better and be purer than tap water, and these water quality perceptions were likely to affect drinking water preferences and consumption patterns (Huerta-Saenz et al., 2012). When it came to the rating of water quality, consumers perceived that water quality, as related to taste, clarity, safety, and purity, was greater in bottled water compared to unfiltered tap water ($p < .01$; Huerta-Saenz et al., 2012). A correlation revealed that purity and safety of filtered tap water and bottled water were highly related—$r = .83$ and .78, respectively (Huerta-Saenz et al., 2012).

Another finding from the Huerta-Saenz et al. study (2012), associated with consumers' shifting water quality perceptions, was the lack of trust people have about the safety of community tap water. However, there was no statistical data to support the finding that a lack of trust was associated with shifting consumer perceptions of water quality; this proposition was based on a previous report. Hu, Morton, and Mahler (2011) found similar results, surveying 5,823 individuals, of which 15% of the respondents expressed the perception that tap water was not safe for general consumption. The conclusions from Huerta-Saenz et al. (2012) and Teillet et al. (2010) were consistent with other studies (Doria, 2010; Hu et al., 2011; Onufrak et al., 2014), in which taste and safety were considered as the common mechanisms that shaped participants' perception about their community drinking water.

Researchers have also examined perceptions of water quality related to race. Huerta-Saenz et al. (2012) and Teillet et al. (2010) explained the relationship between

water quality and its impact on beverage choices among different racial groups. Other researchers also investigated water quality perceptions and the factors influencing those perceptions (Doria, 2010; Onufrak et al., 2014). These researchers' findings (Doria, 2010; Onufrak et al., 2014) were similar to previous studies, which supported the suggestion that water quality perceptions were influenced by taste, risk of illness, color, and odor (Khan, Sharif Chaudhry, Kahn, & Kahn, 2014; Wedgworth et al., 2014). Onufrak et al. (2014) also associated water quality perception with immigrant status.

Beverage Preferences

Regarding water and beverage consumption, Drewnowski, Rehm, and Constant (2013a, 2013b) conducted two evaluative studies, focusing on adult and children water and beverage consumption. Both studies showed a similar trend of water consumption among adults and children, which indicated that it was below the recommended daily water intake. Drewnowski et al. showed different results based on age group. Of adults between the ages of 20 to 50 years, 42.7% of men and 40.6% of women failed to meet the standard water requirement of 1.0 liter per 1,000 Kcal recommended by the American Institute of Medicine (IOM). Drewnowski et al. showed that children did not meet the Dietary Reference Intake (DRI) value as recommended by IOM; 75% of children between the ages 4 to 8 years, 87% of girls between 9 to 13 years, and 85% of boys 9 to 13 years failed to meet IOM standard. The two studies showed disparities between the two populations drinking plain water (bottled and tap water). Non-Hispanic, White adults and children consumed more tap water (763mL/d and 437mL bottled; 297mL/d tap and 160m/d bottled), whereas, Hispanic American adults and children consumed the most

when it came to bottled water (729mL/d and 383mL/d tap; 164mL/d tap and 211mL/d bottled). Sixty-five percent of water consumed by non-Hispanic White children came from tap water, whereas Mexican American and non-Hispanic Black children consumed 44% and 53% of their water from the tap (Drewnowski et al., 2013b).

Other researchers based water quality perceptions on factors associated with taste, color, and odor (Hu et al., 2011; Huerta-Saenz et al., 2012; Matos de Queiroz, de Franca Dora, Rosenberg, Heller & Zhouri, 2013; Merkel, Bicking & Sekhar, 2012; Saylor, Prokopy & Amberg, 2011). The studies were not only focused on bottled and tap water, but also included examination of the intake of other beverages such as flavored milk, fruit juice (100%), soda/soft drinks (regular and diet), fruit drinks, sports drinks, coffee and coffee beverages, tea, and energy drinks. In addition, researchers have investigated children and adolescents' beverages choices and the mechanisms behind these choices, finding results consistent with other findings (Nickelson, Lawrence, Parton, Knowlden & McDermott, 2014; Rader, Mullen, Sterkel, Strunk & Garbutt, 2014). For example, the higher number of calories consumed from SSBs might be linked to childhood obesity, as the consumption of these beverages has doubled, with the average portion size increasing by 46% (Rader et al., 2014).

Challem's (2012) illustration of the calorie concept was based on the law of thermodynamics: The amount of energy going into a system must be equal to the amount of energy leaving the system. When applying thermodynamics to human metabolism, the calories consumed must be equivalent to the calories burned, and in the absence of this equilibrium, there is a likelihood of weight gain due to the lack of physical activity

(Challem, 2012). It is also recommended that 100% fruit juice is good for children (Rader et al., 2014). However, this recommendation is controversial, as it has been demonstrated that excessive intake of fruit juice may also contribute to obesity (Rader et al., 2014).

Evidence suggests that the consumption of SSBs among children is proportional to age, and the intake of SSBs increases as age increases (Nickelson et al., 2014). It was discovered that children as young as 4 months of age had consumed SSBs (Nickelson et al., 2014). Although the intake of SSBs among youth and adults is decreasing in the United States, calories from SSBs still account for 4.5% of energy consumed by children between the ages of 2 and 5; furthermore, adolescents between the ages of 12 and 19 experienced an increased intake of 10.4% (Nickelson et al., 2014).

The Media Influence on Perception

The media also plays an effective and influential role in shaping children and adolescents' perceptions and beverage choices, just as it does with cigarettes/water-pipe smoking, nutritional/dieting habits, and physical/sedentary activities, as well as other behavioral practices (Huerta-Saenz et al., 2012; Levin-Zamir, Lamish, & Cofine, 2011). Studies have provided evidence on how the mass media could have a dual effect on the lives of adolescents; it both compromised their health and promoted health outcomes (Levin-Zamir et al., 2011). The health-compromising effect of mass media could be linked to adolescents' increase in screen time, violence, obesity, and alcohol use. However, adolescents also use the mass media to learn about health promotional information that could reduce risky behaviors (Levin-Zamir et al., 2011).

Johnston-Goodstar, Richards-Schuster, and Sethi (2014) suggested the point made by other researchers that media distributes information and messages broadly. However, the way that foods and beverage messages have been targeted directly to Black children and adolescents could influence their perceptions or encourage this population to consume significant amounts of other types of beverages (African American Collaborative Obesity Research Network, 2011). How Black children and adolescents have handled the pressure of reconciling conflicting opinions regarding water quality and beverage preferences is one of the research questions in this study.

Several researchers have documented water quality perceptions and beverage preferences among Black children and adolescents; however, there remains a gap in the existing literature when it comes to the development of water quality perceptions and beverage preferences of children and adolescents (Huerta-Saenz et al., 2012; Jain, Lim, Arce-Nazario, & Uriarte, 2014; Merkel et al., 2012; Nickelson et al., 2014; Saylor et al., 2011). Little is known about the development of water quality perceptions of Black children and adolescents, or about their decisions regarding what types of beverages they consume at the community level (Hu et al., 2011; Huerta-Saenz et al., 2012; Jain et al., 2014; Merkel et al., 2012; Saylor et al., 2011). Therefore, the need to focus on the development of Black youths' water quality perceptions and beverage preferences is based on evidence that negative perceptions of tap water safety are common, particularly among minority and low socioeconomic status populations (Onufrak et al., 2013). Moreover, these may contribute to lower intake of water and greater consumptions of SSBs (Onufrak et al., 2013).

Problem Statement

In the United States, children and adolescents are consuming a greater quantity of sugar-sweetened, high-calorie beverages and less unaltered bottled or tap water, which represents a potential public health concern (Brener, Merio, Eaton, Kann, & Blanck, 2011). Researchers conducting studies within selected school systems have found compelling evidence that children and adolescents are not consuming enough unaltered water, despite its health benefits, and are instead opting to consume SSBs. These include carbonated sodas, sports drinks, energy drinks, fruit-flavored drinks, flavored milks, and water-flavoring products (Kumar, Park, & Onufrak, 2015; Patel & Hampton, 2011; Patel, Bogart, Schuster, Uyeda, & Rabin, 2010; Patel et al., 2014; Van de Gaar et al., 2014). According to Patel and Hampton (2011), only 33% of adolescents elect to consume plain tap or bottled water; whereas 67% choose to consume high-calorie beverages.

The increased consumption of SSBs is considered a potential cause for the increasing rate of childhood and adolescent obesity in the U.S. population (Bogart et al., 2013; Vanderlee et al., 2014). Vanderlee, Manske, Murnaghan, Hanning, and Hammond (2014) found that 80% of adolescents between ages 13 and 18 consumed at least one SSB per day, with 44% consuming three or more daily. It has been estimated that the consumption rate of SSBs by adolescents could be as high as 84% (Wang, Bleich, & Gortmaker, 2008). SSB consumption is highest among minority adolescents, comprising 15% of their daily caloric intake (Bleich, Barry, Gary-Webb, & Herring, 2014). Although the American Health Association guidelines recommend limiting SSB consumption for

children between the ages of 7 to 18 to 8 to 12 ounces per day, Black adolescents consume at least twice that much per day (Bleich et al., 2014).

The decision to consume unhealthy beverages is a contributing factor in the rising number of obese children and adolescents (Bogart et al., 2013; Chen & Wang, 2013; Patel et al., 2014; Taber et al., 2011) and dental cavities (Chen & Wang, 2013; Patel et al., 2014; Smith & Holloman, 2014). The United States has seen a tripling of the rate of youth obesity from 5% in 1980 to 18% in 2010 (Taber et al., 2011). Researchers have identified several factors that have played a significant role in shaping consumers' preferences for beverage consumption. These have shifted the demand away from bottled water to those containing high-calorie contents (Huerta-Saenz et al., 2012; Van Erp et al., 2014). One of these factors has been identified as the consumers' perceptions of water quality such as taste, odor, color, turbidity, and preconceived fears associated with public water sources (Doria, 2010; Matos de Queiroz et al., 2013).

Several risk assessment studies have been conducted to gauge consumer perceptions of water quality and the effect on their preferences for water consumption sources and alternate beverage options (Hu et al., 2011; Huerta-Saenz et al., 2012; Merkel et al., 2012; Saylor et al., 2011). The authors of these and other studies have consistently demonstrated a connection between the consumers' perceptions of water quality and their decision about whether to drink water or some other type of beverage (Doria, 2010; Matos de Queiroz et al., 2013; Onufrak et al., 2014; Van Erp et al., 2014). Although many of these studies have been focused on the adult consumer, at the community level and within academic settings, there are a growing number of studies

examining the consumption patterns of children and adolescents and linkages to weight gain, health-related risk factors, and the development of chronic dises (Bogart et al., 2013; Brener et al., 2011; Chen & Wang, 2013; Patel & Hampton, 2011; Patel et al., 2014; Patel et al., 2010; Smith & Holloman, 2014; Taber et al., 2011; Van de Gaar et al., 2014).

Despite the growth of scholarly inquiry, there remains a gap in the existing literature when it comes to the perceptions of water quality and beverage preferences of adolescents and children (Huerta-Saenz et al., 2012; Jain et al., 2014; Merkel et al., 2012; Nickelson et al., 2014; Saylor et al., 2011). The focus of this study is important because it is during the formative years that this population develops its lifelong nutritional habits (Desbrow et al., 2014). Therefore, this study was conducted to examine the development of the perceptions of water quality and beverage preferences among Black children and adolescents residing in two cities from a Midwestern state. The decision to focus on Black children and adolescents' perceptions and preferences is based on evidence that shows that negative perceptions of tap water safety are common among minority and low socioeconomic status populations (Onufrak et al., 2013). These may contribute to lower intake of water and greater consumption of SSBs (Onufrak et al., 2013). According to Kumar et al. (2015) and Onufrak et al. (2014), the social network of youths may not only influence perceptions of water quality but also affect their fluid intake preferences.

Purpose of the Study

The purpose of this phenomenological study was to examine the etiology of water quality perceptions and beverage consumption preferences of Black children and

adolescents residing in two cities from a Midwestern state. The works of Robbins and Judge (2011) and Van Schaik, Kusev, and Juliusson (2011) provided vivid explanations of the two concepts of perceptions and preferences. Robbins and Judge (2011) considered perceptions a process by which individuals envision things in their natural surrounding and how they form a mental impression and meaning about these thoughts. Van Schaik et al. (2011) considered preferences as prioritizing the most important desire over the least important desire. Evidence has shown that perception could be influenced by attitudes, motives, interests, experience, and expectations (Robbins & Judge, 2011).

The importance of focusing on Black children and adolescents lies in the fact that during these formative years, children begin to develop perceptions about water quality and beverage preferences. The World Health Organization (WHO; 2015) considered the early stage as the most critical period of the lives of children; and physical, social/emotional, and cognitive development are all important domains of child health. The quality of child health is influenced by many factors, including family, neighborhood, and society (Hertzman, 2010). For instance, children living in poor neighborhoods or from families with low socioeconomic statuses are likely to develop chronic disease, such as obesity, which can impact on child development (Hertzman, 2010). Such health disparities can have a lasting impact on children into adulthood (Deckelbaum & Williams, 2012; Rabbitt & Coyne, 2012). Obesity also poses financial burdens on society; for instance, based on a 2006 estimate, the overall financial burden of obesity in Minnesota was $2.8 billion (Enoch-McDuffie, 2012). In addition, individuals

shoulder the cost of obesity, including reduced quality of life, reduced household income, and increased insurance premiums (Lobstein, 2015).

Research Questions

The following research questions were used to examine the development of the perceptions of water quality and drinking preferences among Black children and adolescents who reside in two cities from a Midwestern state:

RQ1: How do Black children and adolescents, who have a clear perception of water quality and beverage preferences, determine with whom they will compare themselves during their formative years?

RQ2: How have the comparison groups of Black children and adolescents influenced their perceptions of water quality and beverage preferences?

RQ3: How have Black children and adolescents viewed the opinions of others who did not share their perceptions of water quality and beverage preferences?

RQ4: How have Black children and adolescents handled the pressure to reconcile conflicting opinions regarding water quality and beverage preferences to assimilate into what they perceived to be their comparative group?

RQ5: How do the developmental perceptions of water quality and beverage preferences compare between the participant groups of Black children and adolescents?

Theoretical Framework

The theory of social comparison, originally postulated by Festinger (1954), was the theoretical framework that guided this study. The SCT established a framework from

which to examine the development of the perceptions of water quality and beverage preferences of children and adolescents in the Black communities of two cities from a Midwestern state. This theory supports the notion that children and adolescents' perceptions and preferences are influenced by those in their social network and with whom they have a close association. These people may include their parents, siblings, and peers.

The SCT is considered one of the most influential theories in social psychological research (Suls & Wheeler, 2000). The theory is based on the premise that people are motivated to predict whether their perceptions are accurate because inaccurate perceptions can have unpleasant consequences (Corcoran, Crusius, & Mussweiler, 2011; Festinger, 1954; Kruglanski & Mayseless, 1990). When objective standards are unavailable, people tend to evaluate the accuracy of their perceptions by comparing these with the judgments or reactions of others (Zhu & Westphal, 2014). In particular, when people need to make preference judgments (e.g., how much they will like a person or an object), they tend to compare their judgments with the judgments of others who are similar to them on salient social dimensions (Goethals & Darley, 1977).

There is a total of nine hypotheses associated with the SCT (Corcoran et al., 2011; Festinger, 1954; Van Lange, Kruglanski, & Higgins, 2012; Wood, 1989). Corcoran et al. (2011) organized the hypotheses into three clusters based on the themes presented in each hypothesis. Hypotheses 1 and 2 provide a rationale as to why people engage in social comparisons. Hypotheses 3, 4, and 8 address with whom people will compare themselves. Festinger (1954) postulated that people tend to compare themselves with

others who are slightly better. In instances where the opinions and abilities of the comparison group and an individual's self-are too different, it is believed that the information obtained will be of little usefulness (Corcoran et al., 2011; Festinger, 1954; Goethals & Darley, 1977). Lastly, Hypotheses 5, 6, 7, and 9 contain some of the consequences of social comparison to the self. Comparisons may result in the conscious changing of personal opinions and abilities as a means of moving towards the attainment of equilibrium (Corcoran et al., 2011). The extent of the change depends on perceiving the "importance, relevance, and attraction of the comparison as unpleasant" (Corcoran et al., 2011, p. 121). A more detailed explanation of the SCT will be discussed in Chapter 2.

Nature of the Study

I used Moustakas's (1994) transcendental phenomenology, which places less emphasis on the interpretation of the researcher and more on the description of the participant experiences (Creswell, 2013). The rationale for using Moustakas's transcendental or psychological phenomenology for this study is based on systematic steps in analytical procedures and guidelines of constructing the textual and structural description (Creswell, 2013; Moerrer-Urdahl & Creswell, 2004). Transcendental phenomenology was relevant for this study because it is more oriented to describing the words of participants to determine themes regarding the shared meaning and lived experiences (Creswell, 2013). The phenomenological approach is used to obtain in-depth and detailed information about participants' life experiences (Patton, 2015). The approach is also uniquely suited for this study because it provides the opportunity for

understanding several individuals who have shared common experiences of a phenomenon (Creswell, 2013; Moerrer-Urdahl & Creswell, 2004; Patton, 2015).

The phenomenological study, as discussed in Patton (2015) and described by other researchers, refers to philosophy by Husserl (1967); it is considered by Lincoln (1990) as an inquiry paradigm, and Denzin and Lincoln (2000) named it as an interpretative theory. Creswell (2013) considered it as major qualitative tradition, and Moustakas (1994) named it as a research methods framework (Patton, 2015). The central phenomenon for this study was the etiology of water quality perceptions and beverage preferences of Black children and adolescents and how those perceptions affected their beverage choices.

I used a qualitative research design because a qualitative inquiry helps to create a picture of the perceptions and preferences that can be subsequently analyzed based on the information provided by the respondents (Creswell, 2013). Because I examined the development behind the perceptions of water quality and beverage consumption preferences among Black children and adolescents who reside in two cities from a Midwestern state. A qualitative design was the most appropriate approach. This form of scholarly investigation promotes a more in-depth probing into the phenomenon by drawing valuable data from lived experiences of the study participants.

Data were collected from school-aged Black children and adolescents from 9 to 18 years old using semi-structured interviews. This procedure was appropriate, as it allowed me to obtain vast information from participants by not only asking the same questions but by also using probe questions that enabled participants to provide detailed

responses about their experiences (Patton, 2015). This design was the most appropriate approach because it uncovers children and adolescents' water quality perceptions and the reasons behind their beverage choices and preferences, which are currently not well understood. The parents or legal guardians of study participants were the main contacts, and they were adequately informed about the research process. The interview was tape-recorded. This procedure was intended to enhance the quality and accuracy of data and management (Tessier, 2012), and it is the most common method used in phenomenological studies (Creswell, 2013). The data collected were analyzed based on Moustakas's (1994) frameworks for data analysis, which follows systematic and step-by-step procedures (Creswell, 2013).

The first step based on Moustakas's (1994) framework is to consider the full description of the experiences of the researchers. In the second step, I read and re-read to make sense of the data obtained from participants about the phenomenon, and after that, I developed a list of significant statements. In the third step, I categorized significant statements and grouped them into units or themes. Furthermore, I wrote about how the participants experienced the phenomenon and provided a structural description of their experiences. In the fifth step, I provided a structural description regarding how the experience occurred. Lastly, I developed a composite description of the phenomenon by incorporating both textural and structural description (Creswell, 2013). This stage of the paper provides the essence of participants' experiences, which is representative of phenomenological research (Creswell, 2013).

Definitions

Adolescents: These are people from the ages 12 to 18 years old (Lagerquist et al., 2012).

Children: These are people between the ages of 9 and 11 (Lagerquist et al., 2012).

Homophily: This refers to a concept that explain similarities between adolescents and their friends as the result of youths' initial tendencies to affiliate with friends who already possess similar behavioral proclivities and like-minded attitude, as well as a tendency for adolescents' and their friends' behavior and attitudes to become more similar over time (Brechwald & Prinsten, 2011).

Sugar-Sweetened Beverages (SSBs): This is defined by the 2010 Dietary Guidelines for America "as liquids that are sweetened with various forms of sugars that add calories, [which] are a leading source of calories in the diets of children in the United States" (Onufrak et al., 2014, p. 195).

Water Quality: This refers to the chemical and biological characteristics of water with respect to its suitability and use (Leščešen, Pantelić, Dolinaj, Stojanović, & Milošević, 2015).

Assumptions

This study was guided by four major assumptions. The first assumption is honesty; it is assumed that participants answered questions honestly and accurately during interviews. The second assumption was that the lived experiences of individuals are important to the study and that the meanings of these experiences are best given by the people who experienced these moments. The third assumption is that there was not to

be a preoccupation with method and traditional concerns of reliability, generalizability, or validity. The fourth assumption is that the participants were not be coached by their parents or guardians before the scheduled interviews, and the responses obtained must truly represent the lived experiences of participants.

Scope and Delimitations

In this study, I examined the etiology of water quality perceptions and beverage preferences of Black children and adolescents in selected two cities from the Midwest to understand better the factors contributing to a growing phenomenon of obesity within this subset of the population. The growing prevalence of obesity and associated chronic diseases among this population necessitates the need to investigate the problem. Obesity has become an epidemic and poses significant burdens on health care services, families, and social support services. Moreover, it leads to reduced productivity within the national economy (Lobstein, 2015). Obesity has no boundaries and affects all racial groups, but studies have documented the prevalence of obesity among Black children between the ages of 6 to 11 years to be higher (22%) compared to Whites (17%; Ickes & Sharma, 2011, p. 104). The rate of obesity from 1999 to 2012 among Black children and adolescents between the ages 2 to 19 years was higher, more than 8% for Blacks and 3.5% for Whites (The State of Obesity: Better Policies for a Healthier America, 2014).

This study included male and female Black children and adolescents between the ages of 9 to 18 years, who must have been residing in two cities from a Midwestern state from infancy up to 8 years. The period from early childhood up to 8 years is the most critical time of child development; it is the first stage of life that children begin to

experience rapid physical, cognitive, and socio-emotional development (Healthy People 2020, 2016). Participants who did not meet the age criteria and the length of stay in both cities were excluded from the study. I collaborated with parents or guardians during the recruitment of their children; however, they did not play the role of research participants.

The risk perception theoretical framework, as posited by Slovic (1987), was originally considered for this study. This theory purports that people's perception of risk can be greatly influenced by seven factors or characteristics: (a) voluntariness, (b) dread, (c) control, (d) knowledge, (e) catastrophe potential, (f) novelty, and (g) equity (Turvey, Onyango, Shilling, & Hallman, 2009). However, this theory was rejected because it could not lead to a full examination of the phenomenon under investigation. The theory is useful in soliciting public opinions about risks, and it may not be appropriate to examine the etiology of children and adolescents' water quality perceptions and beverage preferences (Turvey et al., 2009). Regarding transferability, this study provided the context and procedures by which the research was conducted to enable readers to understand the research process and to determine the study's transferability. However, the results of this study may not be applicable to other populations.

Limitations

Qualitative research, like any other research paradigm, is prone to limitations; however, these can be managed through the application of a proper research design and protocol (Chenail, 2011). Potential limitations include those related to study design or methodological weaknesses such as transferability and dependability, the involvement of

children as research participants, and biases, as well as steps taken to mitigate their occurrence.

Methodological Weaknesses

Unlike quantitative research, in qualitative studies the findings cannot be generalized, which is considered a limitation (Grossoehme, 2012). Furthermore, my personal bias, presupposition, opinions, and beliefs about the subject matter may influence the authenticity of the data (Creswell, 2013). To reduce the potential effect of researcher bias, I used a method of bracketing, setting aside personal experiences to avoid problems that may affect the findings of the study (Chan, Fung, & Chien, 2013; Creswell, 2013). To accomplish this, I looked beyond personal assumptions, beliefs, and bias that could endanger the outcomes of the study (Chan et al., 2013; Creswell, 2013). Creswell (2013) suggested that the investigator will have to prepare for the interview, select participants, do pilot testing, and conduct the actual interview, but these recommendations can limit findings if not properly implemented. Therefore, I crafted an interview guide that outlines the systematic steps of the research process. The interview guide included preparing for the interview, selecting participants, conducting a pilot test, and conducting the actual interviews. I established face and content validity through a panel of subject matter experts. I calculate the content validity ratio (CVR) and content validity index (CVI) in subsequent chapters.

In addition to limitations, the findings of this study were based on a small sample size of between eight and 20 participants. Sample size in phenomenological studies could vary from 3 to 15 participants (Creswell, 2013); therefore, when it comes to

transferability, it is not certain that the results will apply to other populations. To address dependability, I provide explanations of the research process and procedures to enable future examiners to replicate the findings through similar studies and to have a thorough understanding of the research methods and its effectiveness. I ensured that the data collection, the interpretation of the findings, and the reporting of results are clearly documented and presented. To accomplish this, I used an approach known as an audit trail and member checking. Morrow (2005) and Chang (2014) found audit trail and member checking as useful strategies for increasing the dependability of qualitative research findings. With the use of an audit trail, I organized the research activities and processes in chronological order, which other researchers can examine. I used member checking to verify the accuracy of interview transcripts and preliminary interpretations.

Conducting Research with Children

Researching with minors is complex and requires special attention. This population is a vulnerable group that is highly protected and regulated by the Human Subject Research Act (U.S. Department of Health and Human Services [USDHHS], 2015). The protocol for recruiting children as research participants can be difficult and time-consuming and requires working with appropriate gatekeepers, such as parents or guardians (Shaw, Brady, & Davey, 2011). To mitigate the timing issue, I planned a flexible timeline that allowed the prompt collection of data. I also ensured that all the appropriate documentation, forms, and other necessary resources were available to avoid otherwise delaying the process. Children can also be intimidated or distracted by the research environment, which can affect the data collected. For example, interviewing in a

noisy environment can be distracting. I selected environments that were friendly and conducive for the interview. I set the stage and became better acquainted with participants before the data collection commenced (Shaw et al., 2011). Unlike adults, who are legally competent to consent, the minors in this research required the consent of their parents, as well as their assent (Shaw et al., 2011). I adhered to the regulations stipulated in The Human Subject Research Act for the protection of minors, and the study did not pose any harm or endanger the lives of participants (USDHHS, 2015).

Selection Bias

This study is susceptible to selection bias that causes the underrepresentation or overrepresentation of participants (Pannucci & Wilkins, 2010). The wrong sampling approach could have resulted in selection bias and created a systematic difference between the two cities if not controlled. For example, if the selection process was not fair enough and representative of the population, then it would have caused unexpected results. Therefore, to mitigate such bias, I ensured that Black children and adolescents were selected as representative of their populations. For this study, I used nonprobability, purposive sampling to allocate the right number of Black children and adolescents from their respective communities. This method is appropriate because it is normally used where subjects are intentionally recruited to represent predefined groups or conditions (Luborsky & Rubinstein, 1995). I ensured the use of proper procedures and similar approaches during the recruitment and enrollment of participants from the target population (Pannucci & Wilkins, 2010).

Recall Bias

Another bias that could have impacted the findings of this study if not properly managed is recall bias. Recall bias is the result of not getting all the relevant information from participants, subsequently creating distorted results (Hassan, 2005). The most appropriate strategy for managing recall bias is giving the participants enough time before answering to reflect and think through a sequence of events in their life history (Hassan, 2005). Another mitigating strategy I used was to ensure that the questionnaires for the study were carefully constructed and easily understood (Hassan, 2005). I used member checking to correct any misinterpretation of participants and ensure that their actual views and experiences are reflected.

Interpretation Bias

A limitation of this study also includes interpretation bias. Such bias can occur due to an interviewer's failure to understand or correctly interpret the participants' views and perspectives, which can result in inaccurate data collection (Fusch & Ness, 2015). To mitigate such bias, I was attuned and sensitive to the words of participants by carefully listening, understanding, and interpreting their responses (Patton, 2015; Yanos & Hopper, 2008). Another strategy that I used in managing interpretation bias was participants' validation or member checking. Chang (2014) suggested the use of member checking to correct misinterpretation and to ensure that the actual views and experiences of participants are reflected. I also used interviews and transcripts as points of references to counter check, compare, or confirm participants' responses with the accuracy of the researcher's interpretation (see Creswell, 2013). The researcher's preconceptions may

also skew the interpretations of respondents; therefore, I used reflexive awareness to constantly examine myself, as the researcher, by taking a holistic view of participants' perspectives (see Lambert, Jomeen, & McSherry, 2010).

Analysis Bias

The lack of adequate preparation and systematic, consistent procedures can introduce analysis bias. Several approaches were taken in this study to avoid such error. To mitigate analysis bias, I ensured that the data analysis process is credible by putting aside all predispositions and biases, as suggested by Creswell (2013). To enhance credibility, I engaged in a systematic and conscious search for themes, divergent patterns, and alternative explanations that can be found inductively or by logical analysis (see Patton, 2015). I searched for other means to organize data that could lead to different results, and I sought evidence that supports rival explanations. The lack of evidence to support other explanations enhanced the credibility of the research findings (Patton, 2015). In addition to eliminating analysis bias, I engaged an expert qualitative researcher who independently analyzed and interpreted the data (see Patton, 2015).

Significance

This study is unique in that I examined the etiology of water quality perceptions and beverage preferences among Black children and adolescents who reside in two cities in a Midwestern state. This study may be of value to the public health and medical communities in that it may provide a deeper understanding of the underlying determinants that shape Black children's and adolescents' perceptions of water quality and how this influences beverage choice. More precisely, understanding how people

associate risk perceptions to water quality may aid environmental health educators in crafting communication strategies and educational programs that best meet the needs of the target population by promoting health literacy. Health literacy empowers people to make informed decisions that can reduce health risks and ultimately increase their quality of life (Zarcadoolas et al., 2005). Improving an individual's quality of life may benefit not only the individual but his or her community. Furthermore, it is anticipated that this study may positively impact society by increasing public awareness of the risks, myths, and other determinants that shape the etiological perceptions and preferences of Black youth.

By developing a deeper understanding of the development of children's and adolescents' perceptions of water quality and how those perceptions influence beverage choices, the medical and public health communities can work together to develop intervening strategies. These may aid young consumers in making healthier decisions, which will lessen avoidable health factors that contribute to certain chronic and potentially debilitating diseases (Bogart et al., 2013; Brener et al., 2011; Chen & Wang, 2013; Patel & Hampton, 2011; Patel et al., 2010; Patel et al., 2014; Smith & Holloman, 2014; Taber et al., 2011; Van de Gaar et al., 2014). This study may be the beginning of a paradigm shift that can facilitate a healthier society. This study may lead to for future empirical research focused on water quality perceptions of Black youths and their influence on beverage choices, not only within the United States but also abroad. Finally, this study will promote a positive change in society by enlightening the participants, thus encouraging healthier choices.

Summary

Water quality perceptions and beverage preferences are widely discussed in the literature. However, such literature does not include Black children and adolescents living in less privileged communities. Water quality perceptions appear as a daily phenomenon that water consumers have continued to live with for decades. Moreover, increased beverage marketing and the production of larger varieties of beverages are more likely to trigger youths to select sugar-sweetened products. Studies have demonstrated that children are consuming more SSBs than plain water, which poses threats to their health (Brener et al., 2011).

In this chapter, I defined the research topic and provided the reason for conducting the study. The SCT and its nine hypotheses were also discussed. This theory holds that people can sometimes have upward and downward comparisons. People can have an upward comparison with those who appear superior to them; they might make a downward comparison to those they perceive as not better than them. Other major areas included the assumptions, the scope and delimitations, and limitations; a description of specific problems and establishing the boundaries of the study; and a presentation of researcher biases. Lastly, the significance of the study provided the reasons for conducting the study and the implications for positive social change. The chapter serves as the prelude to Chapter 2, which includes a review of the related literature. In Chapter 2, I will provide a synthesis about the etiology of water quality perceptions and beverage preferences of Black children and adolescents. I will also discuss the theoretical framework of the study.

Chapter 2: Literature Review

Introduction

In the United States, children and adolescents consume an increasing quantity of sugar-sweetened, high-calorie beverages and less unaltered bottled or tap water, a trend that represents a potential public health concern (Brener et al., 2011). Researchers conducting studies within selected school systems have found evidence that children and adolescents are not consuming enough unaltered water, despite its health benefits, and are instead opting to consume SSBs such as carbonated sodas, sports and energy drinks, fruit-flavored drinks, flavored milks, and water-flavoring products (Kumar et al., 2015; Patel & Hampton, 2011; Patel et al., 2010; Patel et al., 2014; Van de Gaar et al., 2014). According to Patel and Hampton (2011), only 33% of adolescents elect to consume plain tap or bottled water, whereas 67% choose to consume high-calorie beverages.

Despite the body of existing research on the topic, little is known about the perceptions of water quality in relation to the beverage preferences of children and adolescents (Huerta-Saenz et al., 2012; Jain et al., 2014; Nickelson et al., 2014; Merkel et al., 2012; Saylor et al., 2011). Therefore, the purpose of this study was to examine the etiology of water quality perceptions and beverage consumption preferences among Black children and adolescents residing in two cities from a Midwestern state.The decision to focus on Black children and adolescents' perceptions and preferences is based on evidence suggesting that negative perceptions to the safety of tap water are common, particularly among racial minorities and populations with low socioeconomic status (Onufrak et al., 2014). Such perceptions may contribute to lower intake of water and

greater consumption of SSBs (Onufrak et al., 2014). According to Kumar et al. (2015) and Onufrak et al. (2014), the social network of youths may not only influence perceptions of water quality but also affect their fluid intake preferences. This study may be of value to the public health and medical communities by providing a deeper understanding of the underlying determinants that shape Black children and adolescents' perceptions of water quality and their beverage choices. An increased understanding of how people associate beverage choices with perceptions of water quality may aid environmental health educators in crafting communication strategies and educational programs that best meet the needs of the target population by promoting health literacy.

The remainder of this chapter includes a discussion of the search terms and strategies used, as well as a description of the databases through which relevant materials were located. In addition, the social comparison theory used to explain the phenomenon will be discussed, along with a review of previous publications on the theory and their applications to the current study. A synthesis of relevant literature about the topic will also be presented.

Literature Search Strategy

The literature review on the topic was implemented using search terms such as *children, adolescents, water quality, perceptions, beverage preference, odor, taste,* and *smell*. However, these terms did not provide relevant articles on the topic. Therefore, I used a strategic approach by combining terms that were more relevant to children and adolescents' water quality perceptions and beverage preferences. In this study, articles were only included if they were peer-reviewed, published within the last 5 years, and

available full text; articles outside the listed parameters were excluded from the study. The literature search was focused on articles that provided analyses of children's and adolescents' water quality perceptions and beverage preferences; however, due to the lack of existing studies on children's water quality perceptions, articles on parents' and public perceptions were also included. The logic or the rationale behind this decision is that parents and communities play a significant role in influencing the perceptions of children during the formative years of their lives.

Based on the established criteria, the literature review started with the Walden University Library, and articles were selected by topic using a combination of EBSCO host databases, including Academic Search Complete, Business Source Complete, and CINAHL Plus with Full Text. Other databases included MEDLINE with Full Text, PsycARTICLES, PsycINFO, and SocINDEX with Full Text. The initial searches using *water quality perceptions* yielded 96 results. Of these articles, 15 were useful. I retrieved additional 208 articles using the search term *drinking water quality concerns*, and 14 were included in this study. Two articles were retrieved using the term *children and adolescent perceptions and water quality*, and both were relevant to the topic. In addition, 100 articles were retrieved using the search term *children perceptions and water quality*, and three articles were related to the topic.

To locate materials on SCT, I used the search term *social comparison theory* within multiple databases and obtained 1,174 results. Relevant articles on SCT were selected and added to the literature. Regarding beverages preferences, I used the search term *beverage consumption and children* and obtained 222 results. Of these results, 11

relevant articles were selected. The remainder of the articles did not pertain to the current study and were oriented to children and adolescents' intake of alcohol and illicit drugs. I further obtained another nine results, including two relevant articles, one already obtained through another search, and six unrelated to the topic by using the phrase *beverage pattern and school children*. The researcher retrieved 294 articles using the search term *risk factor and sugar-sweetened beverages*, and five articles were found to be relevant. To locate articles on factors driving children's beverage preferences, I further searched for the term *parents, peers, influence, children, and adolescent's behaviors*, which yielded 315 results. Of 315 results, 10 relevant articles were selected.

The literature search continued with the use of multiple databases and a combination of search terms such as *water quality, odor, and taste*; the result yielded 24 articles. By limiting the year of publication to the most recent 5 years, the same search term yielded seven results and one relevant article. Eliminating all other search terms and only maintaining *water quality* yielded 3,138 results. By adding *water quality perceptions*, the search yielded 51 articles. All articles that were not relevant to the topic were excluded, with the intent to focus the literature review on water quality perceptions and beverage preferences.

Theoretical Foundation

The theoretical foundation for this study was Festinger's (1954) SCT (Neal & Neal, 2013). Although the concept of social comparison has long existed among social philosophers, researchers suggested that Festinger was the first to use the term *social comparison* as such (Suls & Wheeler, 2012, p. 20) and to propose a systematic theory.

Many social scientists and philosophers have discussed comparison from different perspectives; Platonists deliberated about self-understanding through comparison with an absolute standard, whereas in the book *Nicomachean Ethics*, Aristotle (as cited in Suls & Wheeler, 2012) was concerned about a philosophical focus on social comparison. In addition, Karl Marx (as cited in Suls & Wheeler, 2012) acknowledged the strength of social comparison. However, not much focus has historically been given to the origination of the self, and so the self in relation to others remained unobserved until the end of the last century; the concept has flourished in the last 100 years (Suls & Wheeler, 2012).

The SCT is considered one of the most influential theories in social psychological research (Suls & Wheeler, 2000). The theory is based on the premise that people are motivated to predict whether their perceptions are accurate because inaccurate perceptions can have unpleasant consequences (Corcoran et al., 2011; Festinger, 1954; Kruglanski & Mayseless, 1990). When objective standards are unavailable, people tend to evaluate the accuracy of their perceptions by comparing them with the judgments or reactions of other (Zhu & Westphal, 2014). When people need to make preference judgments (e.g., how much they will like a person or an object), they tend to compare their judgments with the judgments of others who are similar to them on prominent social dimensions (Goethals & Darley, 1977).

The nine hypotheses of Festinger (1954) are clustered based on themes. Hypotheses 1 and 2 include the reason why people compare themselves with others, whereas 3, 4, and 8 include with whom people compare themselves. Hypotheses 5, 6, 7,

and 9 include the effect of social comparison on the self. The words *opinion* and *ability* have been used extensively in social comparison studies. Corcoran et al. (2001) used the words *opinions* and *abilities* respectively to illustrate the concepts of social comparison either for the evaluation of the self or to compare personal ability with others. Festinger stated that people's opinions and beliefs about a phenomenon are based on their orientations, or where they exist, and the evaluation of their ability is what they are capable of doing (p. 1). Opinions and abilities are distinct in meaning; opinion is the perceptions or individuals' evaluation about what they can do, and abilities are demonstrated or shown only through performance (Festinger, 1954). In the social comparison process, people are constantly evaluating their opinions and abilities with those of others (Festinger, 1954). People compare themselves to others based on various motives, such as for enhancement, verification, and improvement (Hoorens & Damme, 2012).

The first hypothesis of Festinger (1954) states that "there exists, in the human organism, a drive to evaluate his opinion and his ability" (p. 117). Opinions and abilities are the two fundamental concepts on which social comparison is based. The need for self-evaluation remains the major tenant of Festinger's work because people want to know whether their opinions are accurate or inaccurate (Buunk, Cohen-Schotanus, & Van Nek, 2007). However, in the absence of objective information, if self-evaluation is implausible by way of nonsocial processes, people will endeavor to compare themselves socially with others (Barnes, & Spray, 2013; Buunk et al., 2007). Festinger stated that people evaluate their opinions and ability by comparing them with the opinions and abilities of others. In

addition, Festinger noted that people compare themselves with others who are similar to them (Barnes & Spray, 2013), on the assumption that this is the means to the most accurate self-evaluation.

Festinger's (1954) theoretical foundation further implies that people strive to improve their abilities; therefore, they compare themselves to those who are superior (i.e., upward comparison; Barnes & Spray, 2013). For instance, people might strive to improve their skills by comparing themselves with others who have a high rating (upward comparison); on the other hand, people might also make a downward comparison for self-motivation, especially when they are better than those with similar situations.

Researchers have applied SCT in contexts similar to the current study. For example, Smith-Jackson and Reel (2012) examined the "freshman 15," which refers to college students' tendency to gain weight of about 15 pounds in their first year at school. Smith-Jackson and Reel focused on freshman women between the ages of 18 and 19, the majority of whom identified as White Food independence, social comparison with peers, and the influence of friends and family represented major factors for weight gain (Smith-Jackson & Reel). The most important theme that emerged from the data involved social comparison; participants mentioned comparing themselves with their thinner and more attractive friends (i.e., upward comparison; Smith-Jackson & Reel). Smith-Jackson and Reel used SCT to examine the factors leading to weight, which is similar to how I examined the factors to which Black children and adolescent's water quality perceptions and beverage preferences are attributable.

Festinger's (1954) SCT provides the framework for understanding the etiology of Black children's and adolescents water quality perceptions and beverage preferences. Furthermore, perceptions and preferences are two important psychological concepts within SCT as related to this study. The SCT will be used to explain the phenomenon under study. The theory supports the notion that children's and adolescents' perceptions and preferences are influenced by those in their social network and with whom they have a close connection, such as their parents, siblings, and peers. Furthermore, Levin-Zamir et al. (2011) and Bergsma (2011) noted that other factors outside individuals' social network, such advertising or the media, have an impact on children's perceptions and preferences. The study thus draws on several of Festinger's hypotheses, which correlate with the research questions regarding Black children and adolescents in their social environment.

Historical Trends in Water Quality and Regulation in the United States

The problem of poor water quality existed before the industrial revolution of 1760 to 1850, which includes the time that marked the beginning of technological advances in the United States and other industrialized nations (Montagna, 2013). Despite the importance of industrialization, the environment continues to be unhealthy (Montagna, 2013). Between 1886 and 1948, the federal government initiated several laws and amendments to control water pollution, such as the Rivers and Harbor Act of 1899, the Oil Pollution Act of 1924, the Water Pollution Control Acts of 1948, and its reauthorization as the Act of 1953 (Hines, 2013). As discussed in Wai (1995), the first regulation specifically dealing with drinking water standards, known as the Integrated

Quarantine Act of 1893, was passed in 1893; the Surgeon General of the U.S. Public Health Service had oversight responsibility to enforce regulations pertaining to disease prevention and control. The government has continuously revised these laws to accommodate other harmful chemicals (Wai). Despite these advancements, these laws and their subsequent amendments lacked enforcement mechanisms; however, the Water Pollution Amendments Act of 1956 shaped the Clean Water Act of 1972 (Hines), which facilitated the removal of the barriers for enforcing the appropriate water quality laws.

The Water Quality Act of 1965 included the creation of a new organization, the Federal Water Pollution Control Administration, which would work within the Department of Health and Human Services and maintain responsibility for administering federal programs (Hines, 2013). The government passed several pieces of legislation during the 1960s and 70s, the most relevant to this study being the Safe Drinking Water Act of 1974 and its subsequent amendment of 1986, which has dramatically changed the dynamic of water quality control in the United States (Wai, 1995). Since its creation, the U.S. Environment Protection Agency (EPA; 2006, 2012) developed into the arm of the federal government responsible for establishing guidelines and setting water safety standards for 170,000 systems in the United States (Wai; Weisenberger, 2010). The EPA has managed several challenges related to environmental degradation, cumulating from the increase in water, land, and air pollution caused by generations of fossil-fuel use, the increase in industrial waste, and use of chemicals that directly influenced the demand for fresh water (CDC, 2014; EPA, 2015). Other amendments to the SDWA mandate providing information to the public regarding water quality, including consumer

confidence reports, sources of water assessments, public notifications, and annual drinking water compliance reports (EPA, 2012).

Water Quality Perceptions

The perceptions people have regarding their water quality represents a public concern in the United States and around the globe, especially for developing countries that lack adequate water supplies and good sanitation. To understand the etiology of children and adolescents' water quality perceptions, and to gain perspective on how children and adolescents decide to consume other beverages, several researchers have documented children's, adolescents' and the public's perceptions about water quality and availability (Gorelick et al., 2011; Onufrak et al., 2014; Vedachalami & Mancl, 2010). Vedachalami and Mancl outlined factors influencing perceptions about water resources based on historical accounts, information developed from personal accounts or stories, or the individual's visual or personal perceptions or experiences (p. 107). They surveyed 819 students, and 589 respondents rated water quality as average. Onufrak et al. (2014) surveyed 1,197 youth between the ages 9 to 19 years to assess their perceptions of tap water and school water fountains and found that about 1 in 5 respondents indicated their tap water was not safe, and 2 in 5 mentioned their school fountain was not safe as well. The rate of unsafe tap water perceptions was high among Blacks (26.4%), as compared to Whites (14.7%; Onufrak et al.).

In another study, Gorelick et al. (2011) surveyed 639 participants to access their perceptions of water using 11 belief statements and found that out of 11, five represented positive statements about bottled water, two represented positive statements about tap

water, two represented negative statements about bottled water, and one represented a negative statement about tap water. These researchers used surveys to examine participants' beliefs about tap water safety and cleanliness, and preferences for bottled water taste. The findings from these researcher were consistent with other studies (American Heart Association, 2015; Doria, 2010; Hu et al., 2011; Huerta-Saenz et al., 2012; Larson & Stone-Jovicich, 2011; Patel et al., 2010), which attributed water quality perceptions to poor taste, appearance, and safety concerns.

In another study of water quality perceptions, Jain et al. (2014) attributed different factors associated with water quality management and the sociodemographic characteristics of decision makers to perceptions of drinking water at the tap; in other words, households may treat their water if they feel the community facility is unsatisfactory. Jain et al. conducted a comparative study of two water management systems: the government-managed Puerto Rico Aqueduct and Sewer Authority (PRASA), and a non-PRASA private community system. As found in Jain et al., the non-PRASA system lacked significant water quality management and was not federally regulated, as compared to the PRASA system. By examining the two institutions, one cannot state that the majority of the people within the managed PRASA system will have positive perceptions about their water quality, as compared to those within the none-PRASA system.

Researchers have also examined perceptions of water quality (Henrich, Holmes, & Prystajecky, 2015; Larson & Stone-Jovicich, 2011; Orgill, Shaheed, Brown, & Jeuland, 2013; Patel et al., 2010). Henrich et al. (2015) conducted eight focus groups

regarding public perceptions of water quality in several communities in Canada and found that the public had positive perceptions about their drinking water. Participants were less concerned about their drinking water and more concerned about the quality of recreational water; overall, they classified their drinking water as having the best quality on Earth. Similarly, Wright, Hong, Rivett, and Gundry (2012) examined public perceptions of drinking water safety based on data from the General Household Survey. in South Africa. Wright et al. (2012) concluded that people have trust and confidence in their drinking water, which increases over the years, probably due to the government's promotional program about water quality.

On the contrary, Larson and Stone-Jovicich (2011) conducted an exploratory study about the community perceptions of water quality in Australia and found a different result. Larson and Stone-Jovicich found negative community perceptions of water quality; participants classified the water as terrible, brown, with a funny taste and smell, and reported that it stained clothing. Orgill et al. (2013) surveyed 915 residents about water quality perceptions in two communities in Cambodia and found that most participants did not feel safe about the water quality and the collection point; however, they felt treated water, stored inside their homes, was safer to consume and use. Similarly, Patel et al. (2010) conducted semistructured interviews among 26 respondents and found that people had negative perceptions about tap water. And Francis et al. (2015) conducted eight focus groups among 56 participants and found that respondents' water quality perceptions derived from disease or illness. Francis et al.'s findings were

consistent with other studies that based water quality perceptions on fear of illness (Beer et al., 2015; Francisco, 2014; Schade et al., 2015; Spencer, 2011; Wynne et al., 2013).

Among all of these studies' locations, great variations exist regarding the sources and treatment of water, especially when comparing developed and underdeveloped countries. In developed countries, water treatment occurs at the source, and water is distributed to households through the tap; whereas, in some developing countries, consumers directly collect their water from the source either orally without treatment or treated by other means. The literature presented demonstrates the rationale for studying people's perceptions and their influence on behaviors.

Health Concerns about Water Quality

Today, as the demand for water continues to increase, people feel concerned about its poor quality, most recently exemplified in the Flint drinking water crisis, which created near pandemonium about the health consequences posed to the general public. Hanna-Attisha, LaChance, Sadler, and Schnepp (2016) recorded individuals' concerns that the Flint drinking water had poor color, taste, and odor, and caused skin rashes and bacterial infections such as those deriving from Escherichia coli (EC). The recent discoveries of lead in children confirmed the reasons for the public's concern about Flint's drinking water quality, which may serve as a warning for state and municipal water authorities.

Other researchers describe more thorough reasons for people's concerns over water quality (Arnold et al., 2013; Crampton & Ragusa, 2014; Goslan et al., 2014; Keil, Wing, & Lowman, 2011; Yang, Guirui, Chunyan, & Pei, 2012). Yang et al. (2012)

carried out a case study on water quality concerns in a typical village in China and found that leaching of nutrients from the soil created a major concern and affected the quality of groundwater. Similarly, Goslan et al. (2014) surveyed four European countries on the presence of disinfection by-products (DBPs) in drinking water and reported variations on the concentration of DBPs found in drinking water based on the water source, type of DPDs, and the geographical location. In addition, Keil et al. (2011) evaluated the health effects of treated sewage sludge (TSS) in eight North Carolina counties, and they tested the TSS, arranging the data from lowest to highest: in Alamance County, the highest TSS occurred (53,000,000 gallons), and Wilson County had the lowest (≥ 2,000,000 gallons).

Crampton and Ragusa (2014) surveyed 142 respondents regarding their concern about agricultural practices and the possible influence on drinking water, and they found that a large majority of the participants believed agriculture affected their drinking water. Further, Arnold et al. (2013) surveyed eight villages and tested 78 water sources in Ghana. Arnold et al. concluded that positive results occurred for total coliforms (TC) in all 18 water pipes; 61% tested as positive for Escherichia coli (EC), and of the ten boreholes, 10% tested as positive for TC, and the majority of the dug wells were tested positive for TC, at 87%. These researchers provided similar explanations regarding water quality concerns; however, the findings they developed from their studies differed based on water sources, treatment practices, and geographical locations.

Additionally, other researchers have studied individuals' concerns regarding the contamination of water, either by human-made pollution or natural occurrences (Berisha & Goessler, 2013; Chirenda, Srinivas, & Tandlich, 2015; Schade et al., 2015; Yasin,

Ketema, & Bacha, 2015). Among these studies, Schade et al. surveyed 498 respondents from Kanawha County, West Virginia and found that 159 respondents reported they associated illness with contamination; moreover, 101 respondents mentioned they associated symptoms, such as rashes or skin irritations, with a disease. Researchers made and presented several assessments; however, Schade et al. recorded only the health effects in their study.

In a similar study, Chirenda et al. (2015) conducted tests on the presence of Heterotrophic bacteria from different sources of water in Harare region, Zimbabwe, and they concluded that all sources of water tested with a high concentration of bacteria. Chirenda et al. stated this concentration tested from 225 to 452 CFU/ml, which remains far above the WHO's (2015) guideline of 100 CFU/ml. Any rate above the recommended guideline includes a significant public health threat to the affected communities. Additionally, Yasin et al. (2015) performed bacterial, and other related tests on different water sources in Jimma zone, South Ethiopia, and they concluded that all water sources tested as contaminated either by TC or fecal coliforms (FC); only 66.67% of tap water samples included a negative result for FC and EC. Yasin et al. did not include other results in their study.

Water contamination in developing countries may be associated with poor sanitation practices, considering the proximity of water sources to waste deposit areas, such as latrines, and the existing inadequate knowledge of proper hygienic practices. For instance, Berisha and Goessler (2013) investigated 951 samples of water from four different sources in Kosovo, and again, they demonstrated most of the samples tested

above the recommended level, including the level recommended for private bored wells; naturally flowing, artesian water; pumped, drilled wells; and public water sources. All of these researchers expressed similar concerns about water quality, and their findings remain relevant for understanding water quality management, and health education and promotion.

Water quality continues to be a major concern, especially for vulnerable children who are the primary victims of a disease. Researchers have provided convincing evidence to substantiate water quality concerns. Profitos et al. (2014) documented the muddying of drinking water in Cameroon using a demographic survey to determine water-quality-related problems among children ages 5 to 18 and found water quality to be associated with disease outcomes. Similarly, Pieper, Krometis, Gallagher, Benham, and Edwards (2015) performed drinking water analyses and recorded the incidence of waterborne lead in private drinking water in Virginia; the findings showed lead concentrations to be above the EPA (2015) action level of (15 ug/L). Additionally, Barlow, Kingsburg, and Coupe (2012) analyzed the groundwater quality in Memphis and found effects of volatile organic compounds on water quality. Furthermore, Murti et al. (2016) documented the negative impact of extreme drought on the quality and quantity of water for the owners of private wells in the United States. These researchers had similar aims and contributed to the body of knowledge that identified the concerns people have about drinking water quality, which is pivotal for consumers and water quality management.

Water Quality Enforcement in Minnesota

Minnesota is blessed with an abundance of water resources, including groundwater, lakes, streams, and rivers (Anderson, Liukkonen, & Bergsrud, 2016; Minnesota Pollution Control Agency (2015). However, the residents of Minnesota still feel concerned regarding the safety and quality of their drinking water. Predominantly, the question of how these resources can remain safe and protected has represented the greatest challenge that both state and municipal authorities must address. Anderson et al. demonstrated that surface, and groundwater contamination represent the most common type of pollutants in Minnesota, and usually derive from coliform bacteria and nitrate. Regrettably, the majority of the people do not understand the threat of contamination and the health consequences posed (Anderson et al. The Minnesota Pollution Control Agency is the regulatory agency responsible for monitoring and managing the quality of water in Minnesota (Crane, 2014). Leadership at the agency also provides technical and financial assistance and enforces environmental regulations in the state of Minnesota (Crane, 2014; Black & Zbinden, 2014; MPCA, 2015). The Environmental Protection Ageny is a federal agency that has oversight responsibility on environmental issues. The Environmental Protection Agency works with state and tribal regulatory partners to monitor and ensure that responsible parties are fully adhering to the clean water laws and regulations for the protection of human health and the environment in which they live (Anderson et al.).

Sources of Water Supplies in Minnesota

In Minnesota, residents obtain their water from public or private water suppliers (Anderson et al., 2016). Public water supplies in Minnesota are highly regulated, and

water suppliers must meet the quality standards established by the Environmental Protection Agency (Anderson et al.) Unlike public water suppliers, private water suppliers are not required to meet mandatory standards; thus, it remains the responsibility of individual custodians to ensure the testing and quality of private water supplies (Anderson et al.; Minnesota Department of Health [MDH], 2015). Public water suppliers include those in the community, such as nontransient, noncommunity, or transient, noncommunity suppliers (Anderson et al.). Community suppliers service a population within a residential setting with a minimum of 15 connections or at least 25 year-round residents, including those located at mobile home parks, municipal water utilities, institutions, and condominiums or large apartment complexes (Anderson et al.). Nontransient, noncommunity suppliers, are responsible for 25 or more similar populations per day, during a six-month period per year, which may include schools, businesses, and factories; whereas, transient, noncommunity suppliers service places including restaurants, motels, and parks (Anderson et al.).

In Minnesota, the major sources of drinking water derived from surface or groundwater (Anderson et al., 2016; United States Geological Survey (1995). In 1990, the U.S. Geological Survey documented that about 79% of Minnesotans obtained their water supply from groundwater, and they collected approximately 800 million gallons of groundwater per day. Recent reports included indications that two-thirds of Minnesotans' drinking water derived from groundwater (MPCA, 2012). The Mississippi River, including the Vadnais chain of lakes, serve as a major source of water supply within the Twin Cities; whereas, other cities use surface water from Lake Superior, inland lakes, the

Red Lake, and the Tamarac rivers (Anderson et al., 2016). Regrettably, other communities located around the Iron Range use water from abandoned open pit mines (Anderson et al.)

Overview of Municipal Water Supply in Brooklyn Park

The Minnesota Department of Health (MDH, 2012) showed that the residents of Brooklyn Park obtain their drinking water from groundwater, and the city has 18 water supply wells that distribute water to residential and commercial properties (p. 9). However, the public still expresses concerns about water quality based on the city's history of agriculture and waste disposal. From 1954 to 1966, researchers recorded that leadership in Brooklyn Park operated a dump site with an approximate area of 21 acres, situated on former agriculture fields and wetlands; the area lies south of 85th Avenue North and east of Regent Avenue (MDH, 2012, p. 6). At the time, Brooklyn Park consisted of mostly rural and residential homes, including widely spaced farms and businesses existing near the dump (MDH, 2012). The MPCA (2012) identified three main areas of the dump site, including:

1. Area 1, west of Noble Avenue North, was owned by the city government;
2. Area II, east of Noble Avenue North, which the city's government-owned as its operation and maintenance facility; and
3. Area III comprised of commercial and light industrial properties.

After the end of the dump operation, the city government acquired and developed most of these areas.

Due to several complaints from residents regarding the presence of black, tar-like substances in the soil in the east side of Central Park, environmental investigators felt prompted to research this anomaly. Consequently, the U.S. Environmental Protection Agency (2012) responsive actions resulted in the placement of the site on the state's Superfund list, and volunteers undertook several cleanup initiatives to remove contaminated soil, waste, and the tar-like material (MDH, 2012; MPCA, 2012). However, researchers also disclosed that private land close to the site had some contamination that volunteers did not remove, and they concluded that groundwater testing for the entire site revealed a low level of contaminants, insufficient to create health risks (MDH, 2012). Nevertheless, little has been done to examine the effects of the long-term accumulation of these substances and consequences for the public's health.

Furthermore, contaminants on private properties, if not removed, may cause a ripple effect, endangering the entire community. Recently, LeMay (2012) reported the concerns and experiences of residents who lived or currently live in a Midwestern state about the cluster of illnesses physicians have diagnosed in people between the ages of 35 and 45. Most of the victims suffered from cancer-like diseases, including lupus, pancreatic disease, multiple sclerosis, amyotrophic lateral sclerosis, pemphigus, and myasthenia gravis (LeMay). However, LeMay did not clarify whether the probable source of cancer-related to illnesses derived from the drinking water or the dump. Currently, the city of Brooklyn Park (2016) has a water treatment plant that treats up to 26,000,000 gallons of water each day and services over 22,000 customers within 270 miles of the water line.

Overview of Municipal Water Supply in Brooklyn Center

The leadership in Brooklyn Center has invested in water resources over the years, and they have 114.98 miles of water mains, 1,356 water valves, and 969 fire hydrants (City of Brooklyn Center, 2012). The city's government provides service to 7,311 metered, single-family, residential connections, and 1,624 metered apartments, including townhomes, commercial businesses, and industrial customers (City of Brooklyn Center). The City of Brooklyn Center (2016) Consumer Confidence Report showed that the residents obtained their drinking water from nine groundwater wells that have a depth of 313 to 340 feet; these wells are filled from Jordan and Prairie Du Chien-Jordan aquifers. The city's government conducts tests on its water supply throughout the year for safety and to ensure that it remains within the water quality standards set by the EPA and the State of Minnesota (City of Brooklyn Center). While the government applies every effort to control water contamination, concern about manganese in drinking water remains, of which high intake can influence human health, especially in infants and children (MDH, 2012). Haynes et al. (2015) and Chung et al.'s (2015) findings remained consistent with the findings included in the MDH (2012), which includes that a large intake of manganese, despite its health benefits, can affect learning and behavior in infants and children.

The high concentration of manganese in drinking water warranted the construction of a treatment plant in Brooklyn Center to remove the element from drinking water (Prather, 2015). Prather indicated that the level of manganese found in tap water was 380 parts per billion (ppb) in recent years, which is far above the recommended level

of 300 ppb and the lower level of 100 ppb for infants. Prather described Manganese as an element that occurs naturally in water, and the widespread of the element is mostly found in the central and southwestern part of Minnesota. As discussed in the City of Brooklyn Center (2016) official website, the MDH issued a health advisory for households with infants less than one-year-old to take the necessary precautions to minimize the exposure to manganese (para. 5). A new proposed plant that is expected to be fully equipped with filters will also minimize the presence of iron in the water (Prather).

Water Quality Management at the Home Level

A central system may be effective in providing adequate drinking water supplies to the general population; however, such systems remain vulnerable to contamination, causing ripple effects at the point of use (POU). POU devices are appropriate and cost-effective financing in areas that have small water systems, servicing 10,000 residents or less (EPA, 2006). POU treatment by residents remains the most common mechanism currently used to manage a wide range of contaminants and to improve water quality, resulting in better taste, odor, and color, as evidenced by the EPA (2006) and the CDC (2015). Bellen, Anderson, Gotter, and National Sanitation Foundation (n.d.) described the most common POU treatment approaches or devices as batch process units, faucet-mounted devices, in-line devices, line-bypass devices, and whole house treatments.

Batch process units are used to treat one batch of water at a time, and this kind of device does not connect to the water supply (Bellen et al., n.d.); faucet-mounted devices remain directly connected to the faucet. An in-line device is positioned between the cold-water system and the kitchen faucet, and it functions by treating the cold water from the

kitchen. The line-bypass device obtains its water source from the cold-water treatment line, and it can be installed under the kitchen sink; plumbers mainly use it to treat water intended for consumption. Additionally, whole-house treatment devices are connected to the entire water supply in the house to control potential health risks. These POU devices can all be used to remove or separate undesirable contaminants from drinking water.

Point of Use Treatment Technologies

The EPA (2006) and Sorg, Wang, and Chen (2015) identified four major POU technologies for water treatment: adsorptive media, ion exchange, granular activated carbon, and reverse osmosis. However, the use of these treatment technologies remains contingent on the thorough evaluation of all the factors associated with federal requirements, state and local policies, rules, and regulations governing the implementation of POU (EPA, 2006). Those involved with such programs must be prepared to invest a significant amount of resources into public education within the service community before and after the installation of POU or POE device (EPA, 2006).

The EPA (2006) classified adsorptive media technology as the simplest method used to remove arsenic from potable water, especially effective with small water systems. The ion exchange comprises of anion exchange or cation exchange; therefore, ion exchange is the most appropriate method used for removing inorganic species or undesirable contaminants from water (EPA; Grefte, Dignum, Cornelissen, & Rietveld, 2012). The EPA and Shirey, Thacker, and Olson (2012) identified granular activated carbon as an approach used in removing synthetic, organic and human-made chemicals from the water; they also noted an improvement in the taste, odor, and the color of water.

The reverse osmosis method of water purification is used for the removal of various inorganic chemicals, including cadmium ions such as radium and uranium (EPA; Kheriji, Tabassi, & Hamrouni, 2015). These approaches are unique for the removal of specific chemical or contaminants from water. However, user must complete the application of these methods with care and within the requirements from federal, state, or the local jurisdictions to benefit from the service (Chen, Erker, Kanematsu, & Darby, 2010).

The Application of Point POU Treatment Technologies

Today, due to the increasing rise in water contamination from natural occurrences and human-made chemicals, the need for innovative technologies remains. Grefte et al. (2012) investigated the ion exchange method for the removal of natural organic matter from drinking water and found the procedure effective and promising. Similarly, Kheriji et al. (2015) studied the role of reverse osmosis in combination with nano-filtration in the removal of cadmium iron from water, and the result included that the twin effect reduced cadmium ions. Sorg et al. (2015) conducted a comprehensive summary of the costs associated with different treatment technologies in the removal of arsenic from groundwater; furthermore, they noted the application of adsorptive media, iron removal, coagulation or filtration, ion exchnge, reverse osmosis, and POU devices during the EPA's (2012) arsenic demonstration program. These methods reduced arsenic concentration below the EPA's recommended maximum contaminant level of (10 ug/L). However, their explanation, regarding the complexity of the different chemicals, used, their removal of contaminants from water, and the costs associated with each method does not pertain to the focus of this paper. As environmental pollution continues to be an

issue, along with population growth and climate change, the quality of water may decline. Therefore, these innovative technologies are promising, and small water providers may use them in providing clean potable drinking water for community members.

Health Education and Promotion of Water Quality

A host of factors contribute to poor water quality, which has been highlighted in other sections of this chapter. On this note, to improve perceptions of water quality, communities must prioritize promoting health education. For example, the federal initiative Healthy People 2020 (2016) underscored the need for environmental health and added improved surface and groundwater as one of its 2020 objectives. Despite annual water quality reports from municipal water authorities as mandated by the EPA (2012), it is not clear whether the public understand such information or whether the channel in which it is disseminated is the best approach. Not everyone has access to such information through the city, county, or state databases or websites. Therefore, the use of communication channels that penetrate a wide spectrum of the community is warranted. McKenzie, Neiger, and Thackeray (2009) encouraged health education and promotion and emphasized communication as a unique strategy for disseminating messages to the target population. Similarly, Schiavo (2007) considered health communication as a helpful tool for reaching a priority population.

Additionally, in a University of Minnesota (2011) report, the authors recommended incentives for consumer education and advocacy to prevent future water contamination, an approach that includes support for community awareness and health education on water quality. Furthermore, Rundblad, Knapton, and Hunter (2014)

identified different types of communication channels used during floods in England, and they found the local radio as the most useful source of information; furthermore, they discovered leaflets from the water company also worked. These researchers highlighted the different forms of communication strategies that might be useful in disseminating water quality information to the general public.

Based on the evidence gathered from the literature, it is imperative for municipal water authorities to coordinate with community health workers (CHW) and the members of the community in designing culturally appropriate water quality messages that can be disseminated by trained health educators in a community setting. The proper use and implementation of health communication strategies may improve or shift the negative perception that children and adolescents have about the quality of their drinking water. Educating children and adolescents about the safety of their water remains relevant for health promotion behavior. The promotion of community drinking water is important because it alleviates fears about how people think about their drinking water.

Sugar-Sweetened Beverages Preferences

Several researchers have examined the beverage consumption patterns among children and adolescents from all racial groups in the United States and globally (Danyliw, Vatanparast, Nikpartow, & Whiting, 2012; Duffy et al., 2012; Lasater, Piernas, & Popkin, 2011). Lasater, Piernas, and Popkin surveyed 3,583 participants between the ages of 6 and 11; the authors showed an increase in calories and sugar-sweetened beverages (SSBs) from 130 to 212 Kcal/day, and a decrease in calories and nutritional beverages (CNBs) from 210 to 133 Kcal/day, for the period from 1998 to 2008 (Lasater

et al.). In percentages, intake of fruit and soft drinks increased from 67% to 77%; intake of high-fat, sugar-sweetened milk increased from 19% to 39%; and intake of sport drinks increased from 2% to 12%; more specifically, the increase in the intake of sport drinks among non-Hispanic and Black individuals increased from 79 to 134 Kcal/d; it increased among Hispanics, from 71 to 111Kcal/d; and it increased among non-Hispanic and White individuals, from 92 to 121Kcal/d, respectively (Lasater et al.). Duffy et al. conducted a similar study, surveying 2,741 respondents, aged 12.5 to 17.5 years in eight European countries. The authors demonstrated that per capita, adolescents had the largest amount of fluid consumption from water, followed by fruit juice. Especially considering other beverages and low-fat milk, SSBs comprised the largest per capita energy consumed from beverages, followed by sweetened milk; overall, the researchers reported that males consumed more fluid from all beverages compared to females (Duffy et al.).

Other researchers have extensively discussed SSBs among children and adolescents, including Feferbaum, de Abreu, and Leone (2012); Field et al. (2014); Hsin-Jen and Youfa (2013); Nickelson et al. (2014); and Ziegler and Temple (2015). Nickelson et al. surveyed 71 parents to investigate the proportion of preschool children who consumed SSBs, and found that age was a great determinant of SSB consumption. Nickleson et al. indicated that children ages 1 to 2 years old were 35 times more likely to consume fruit drinks, 17 times more likely to consume sodas, 6.5 times more likely to consume sweet tea, and 53 times more likely to consume sweetened milk; children 3 to 5 years old were 263 times more likely to consume fruit drinks, 30 more times likely to consume sodas, 11 times more likely to consume sweet tea, and 375 times more likely to

consume sweetened milk. Furthermore, infants younger than one year were less likely to consume SSBs (Nickelson et al.). The consumption trends among participants demonstrated that age is proportional to the intake of sweetened beverages; therefore, as age increases, the consumption of SSBs increases as well.

Hsin-Jen and Youfa (2013) used survey data to examine 8,850 eighth-grade adolescents from 1,280 schools and found that on a weekly basis the eighth graders consumed 5.31 soft drinks, 8.32 glasses of milk, and 3.38 glasses of juice. Boys drank milk and soft drinks more frequently than girls (Hsin-Jen & Youfa). In another study, Feferbaum et al. (2012) investigated fluid intake among 831 children and adolescents, aged 3 to 17 years, in Brazil. Feferbaum et al. found that the consumption of carbonated beverages was associated with age; furthermore, the intake of these beverages increased as age increased. This finding remains consistent with other researchers, who considered that increase in beverage consumption may include an association with age (Gallimberti et al., 2013; Hafekost et al., 2011; Hasnain, Singer, Bradlee, & Moore, 2014; Luszczynska et al., 2013; Nickelson et al., 2014; Wuenstel et al., 2015). However, the intake patterns do differ according to the age group. This information about such variation may aid decision-makers in crafting policies to meet the needs of various age groups. For instance, policies aimed at banning middle schools and preschools from selling SSBs in vending machines could be a useful approach to mitigating childhood obesity. This researcher focuses on children and adolescents ‘preferences as a way to understand why they decide to consume SSBs.

Sugar-Sweetened Beverages Risk Factors

Several researchers have documented the risk factors most commonly associated with the consumption of SSBs. Laverty, Magee, Monteiro, Saxena, and Millett (2015) linked SSBs with obesity and diabetes among children and adolescents. Mirmiran, Yuzbashian, Asghari, Hosseinpour-Niazi, and Azizi (2015) and Gökler, Buğrııl, Metintaş, and Kalyoncu (2015) linked SSBs to metabolic syndrome, abdominal obesity, and hypertension among children and adolescents. Furthermore, Wang et al. (2013) associated higher consumption of SSBs with elevated systolic blood pressure and insulin resistance among obese children and strongly linked higher SSB intake to greater fat development. More interestingly, Bel-Serrat et al. (2013) revealed that the consumption of large amounts of SSBs and the low intake of related foods, including nuts and seeds, breakfast cereals, jam and honey, and chocolate and nut-based spread remains highly associated with an increased risk of cardiovascular disease. These researchers provided similar explanations regarding the risk factors associated with children's and adolescents' SSB consumption.

Additionally, Danyliw et al. (2012) surveyed 13,824 participants, aged 2 to 18 years, to investigate beverage patterns among Canadian children about obesity. The authors showed that children consumed high amounts of sweetened beverages, above the recommended level; interestingly, those among the age group 6 to 11 years mostly consumed soft drinks and were considered to be at risk for obesity and being overweight. Other researchers (Danyliw et al.; Duffy et al., 2012; Lasater et al., 2011) demonstrated similar trends in beverage consumption patterns and the relationship to weight and

obesity. However, the researchers' findings were not consistent across the three studies: Danyliw et al. did not discover an increase in weight and obesity in the 12- to 18-year-old age group, which contradicts other researchers who show adolescents as vulnerable to obesity (Nielsen et al., 2015; Zafar Janjua et al., 2012). The researchers provided the beverage consumption patterns in the three regions among children and adolescents, documenting their neglect to intake adequate drinking water and their consumption of more sweetened beverages. This pattern appears to be associated with an increased rate of obesity within the study population.

Further, Field et al. (2014) examined sports drinks and the association with weight gain among 4,121 females and 3,438 males. Field et al. showed that consumption of sports drinks seemed directly linked to a greater increase in body mass index (BMI); each serving of sports drinks per day for girls showed an increase of almost 0.3 BMI units; this means that 95% Cl had a lower and upper limit of 0.03 and 0.54 more than their counterparts over 2 to 3 years; however, when considering males, each serving of sports drinks showed an increase of 0.33 BMI, reflecting 95% Cl (0.09, 0.66), respectively. While other researchers have considered the intake of multiple beverages among children and adolescents, Field et al. developed an intuitive tool to examine heavily consumed sports drinks that are readily accessible to young adults. Therefore, identifying sports drinks to be associated with increased body weight is useful in controlling obesity.

Ziegler and Temple (2015) surveyed 7,105 male, and 7,144 female adolescent high-school students in the United States regarding soda consumption and its association with risk-taking behaviors. Of the study population, 16% of females presented as

overweight, and 10% presented as obese, while 15% males presented as overweight and 17% presented as obese. Ziegler and Temple found that among young adolescents, those who drank soda on a daily basis were 1.54 times more likely to drink alcohol compared to those who did not drink soda.

Factors Affecting Children and Adolescents' Sugar-Sweetened Beverage Preferences

The environment in which children and adolescents spend time plays a significant role in their beverage choices, including the home environment, where basic needs are determined by parents' social economic status, and the outside environment, where children's food preferences are determined by accessibility and peer influence. For instance, researchers (Adamo & Brett, 2014; Dallazen & Medeiros, 2014; Luszczynska et al., 2013; Van Ansem, van Lenthe, Schrijvers, Rodenburg, & van de Mheen, 2014) provided evidence of the influence that the home environment and neighborhood environment can have on children. Van Ansem et al. investigated the environmental factors related to children's dietary behaviors among 8- to 12-year-olds and their parents' behaviors. Van Ansem et al. showed that parents with intermediate and low SES consumed SSBs at high levels, and SSBs were more likely available at home compared to parents with high SES; furthermore, the availability of SSBs and their consumption by parents were linked with children's consumption of SSBs. Similarly, Luszczynska et al. investigated adolescents' beverage consumption from the perspective of the home environment, as well as out of the home environment at different stages, including preadolescence, age 10 to 11; early adolescence, 12 to 14; and mid-adolescence, 15 to 17.

Luszczynska et al. indicated that 60% of respondents mentioned they had access to SSBs at home, while 58.9% reported that SSBs were easily available to them in the outside environment.

Interestingly, among the three stages of adolescents, at the preadolescent and early adolescent stage, parental influence remained vital to easy accessibility and intake of SSBs at home; whereas, at the mid-adolescent level, peer influence related to intake of SSBs in the outside environment. On the other hand, other researchers associated parents' social economic status with children's SSB consumption in the home (Bogart et al., 2013; Hafekost et al., 2011; Hajna et al., 2014; Jia et al., 2012; Nickelson et al., 2014; Van Ansem et al., 2014), and peer affiliation with adolescents as factors responsible for their consumption of food and SSBs in their social environment (Cullen et al., 2000; Fortin & Yazbeck, 2015). Additionally, Adamo and Brett (2013) attributed children's SSB consumption to parents' SES status and peer influence, and generalized that children eating in a fast food environment will consume more energy per gram from food; greater total fat, carbohydrates, and added sugar; more SSBs; and less fiber, milk, and fruits, as compared to children not eating fast food. Furthermore, the work of Dallazen and Medeiros (2014) reinforced the evidence from previous studies that peers have a significant influence on children's food choices, which serves as a factor in food purchasing decision and preferences.

The evidence gathered from these studies regarding parents' SSB consumption, and peer influence represents a real phenomenon: If parents regularly consume and consider SSBs as a normal part of the family diet, the likelihood exists that the children

will drink SSBs as well. The home environment has a significant influence on children's and adolescent's food choices, as parents make most of the decisions when it comes to food purchases. However, as children interact with their peers in the social environment, they look for peers who are similar and attracted to them. Therefore, they may feel influenced negatively or positively, based on peer consumption behaviors. Moreover, as children advance to adolescent age, they start to take control of their food purchasing behaviors, so that parental influence continues to decline and peer influence increases. Peer influence and parents' socioeconomic status were themes shared across all studies.

Additionally, the increasing use of media and food advertising directly targeted to children and adolescents has a significant influenced within the study population. One major reason why children and adolescents consume SSBs and other related foods involve the way in which these products are marketed. Several researchers have attested to unhealthy food and beverage advertising to children and adolescents (Kashif, Ayyaz, & Basharat, 2014; Romero-Fernandez, Royo-Bordonada, & Rodriguez-Artalejo, 2013; Ustjanauskas, Harris, & Schwartz, 2014). Ustjanauskas et al. investigated food and beverage marketing directly targeted to children, and found that approximately 3.4 billion marketing activities are presented on children's websites containing 254 advertisements for different food products; among this number, about 83% were presented on four websites, including Nick.com, NeoPets.com, CartoonNetwork.com, and Disney Channel. About 64% of ads included a focus on breakfast cereals and fast food, 74% constituted promotion of brand marketing, and 84% advertised products for food with high-fat content, containing sugar and sodium. Similarly, Romero-Fernandez et al. evaluated

about 486 commercials that advertised 96 different types of products on television, and found most of the commercials depicted unhealthy products for children; 61.5% of products advertised were less healthy, 74.1% of advertised product was mostly food, and 80% were non-alcoholic drinks, and soft drinks were considered less healthy.

Kashif et al. (2014) evaluated the impact of television food advertisements on children's buying and consuming habits and found that most of the respondents raised concerns about the negative influence of TV ads on their children's purchasing and consumer behaviors, as well as the impact of peer influence on their food choices. On the other hand, while TV appears to be a significant source of beverage and food information targeted to children, it also serves as an important source for health education and promotion for children. Overall, these researchers contributed to the broader knowledge on the influence of food marketing directed to children. Parents need to help their children evaluate the commercial that they see, and the need exists for more program interventions and policies to reduce the marketing of unhealthy food and beverages directed to children.

Prevention Strategies for Reducing Sugar-Sweetened Beverage Consumption

The development of health prevention strategies in reducing the consumption of SSBs remains the best option in combating obesity and its related chronic diseases among children and adolescents. Current strategies and policies exist on the topic; but incorporating new strategies and research recommendations remain important (Hodge et al., 2014; Kass, Hecht, Paul, & Bimbach, 2014; Rader et al., 2014). Rader et al. (2014) investigated possible treatment options by using surveys of parents or legal caretakers of

children between the ages of 6 months and 12 years regarding potential opportunities that reduce the use of SSBs. Rader et al. demonstrated that the majority of respondents might follow the recommendations from their primary care physicians about limiting the consumption of SSBs (90.7%), whereas a small percentage (28.9%) may prefer a health educator.

Similarly, Bleich et al. (2014) conducted a pre-and post-intervention study to examine the mechanism in which adolescents would reduce their beverage consumption using six stores in Black neighborhoods. Bleich et al. collected two data, one with caloric information, and one without caloric information. Bleich et al. found that caloric information significantly reduced the number total beverage calories purchased. Additionally, Kass et al. (2014) examined ethical considerations, and they proposed three prevention strategies that may be effective in reducing the consumption of SSBs. This includes prohibiting the sale of SSBs in public schools, taxation of SSBs (i.e., the producer or distributors of SSBs must pay an excise tax of 1 cent per ounce, while the customer pays a 20% sales tax), and prohibiting supplemental nutritional assistant program (SNAP) benefits for the purchase of SSBs.

Hodge et al. (2014) buttressed other researchers (Kass et al., 2014) who posited that a ban on the sale and possession of caloric sweetened beverages and SSBs by minors in public schools and to include private schools as well remains vital. The propositions made by these researchers are similar and geared toward reducing the intake of SSBs among children and adolescents. Policymakers must review the ethical considerations regarding the sale of SSBs, by examining the burden of harm to the youth versus the

societal benefits. Prohibiting the sale of and access of SSBs to minors may yield significant results, as similar policies that prohibit cigarette and an alcohol sale to minors have proven effective.

Health Education on Sugar-Sweetened Beverage Consumption

Researchers have used health education and promotion extensively to create awareness and to reduce the intake of SSBs among children and adolescents. Nearly all state governments have developed some form of communication campaign for the prevention of childhood obesity. Examples of programs include the following:

- the state of Alaska (2016) has the Play Every day Campaign,
- the state of California (2016) has the Network for a Healthy California,
- the state of Kansas (n.d.) has the Just Add Water campaign,
- the state of Illinois (n.d.) has the Education and Direct-action Organizing campaign,
- the state of New York (2016) has the Pouring on the Pounds Campaign, and
- the state of Minnesota (2014) has the Overweight and Obesity Prevention campaign.

State and local agencies have used many communication strategies to reach their target audiences, such as television, radio, posters, banners, and other outreach activities. Additionally, Stahl, Necheles, Mayefsky, Wright, and Rankin (2011) adopted 5-4-3-2-1 Go! Flyer messages; the 5-4-3-2-1 is a count of good health that show five to be five servings of fruits and vegetables, four as four glasses of water, three as three servings of low-fat dairy products, and two as less screen time, and one as one or more rounds of

exercise daily. Stahl et al. found the communication strategy effective for the prevention of obesity among children and youth. Stahl et al. developed the clinic-based and community education messages to dissimilate using a flyer, videotape and counseling. Similarly, Davison, Jurkowski, Li, Kranz, and Lawson (2013) used communication campaigns and other integrated activities for the prevention of childhood obesity; overall, Davison et al. found significant improvement among participants in all areas of the program's interventions.

The review of the literature demonstrates the existence of many communication campaigns for the prevention of obesity among children and adolescents. Despite the fact that these programs appear to be effective, the intake of SSBs is alarming, which appears as a major contributing factor to obesity among children and adolescents. There is the need for more research that will focus on parents' and children's education in the home setting since the dietary habits of children begin at home. Furthermore, additional cost-benefit analysis at the policy level should determine whether the benefit of producing SSBs and marketing them to youth outweighs the safety and the health of the children.

Summary

The researcher has extensively explored the etiology of water quality perceptions and beverage preferences among children and adolescents and way they think about water quality and their decisions to consume other beverages. In this review, I discussed several studies contributing to the literature on water quality and public perceptions. Vedachalami and Mancl (2010) attributed to water quality perceptions to individual experiences, and Larson and Stone-Jovicich's (2011) findings associated water quality

perceptions to funny taste and smell. Other researchers also contributed water quality perceptions to fear of illness (Beer et al., 2015; Francisco, 2014; Schade et al., 2015; Wynne et al., 2013). Most of the articles analyzed discussed similar concerns related to water quality such as taste, color, odor, or contamination with chemicals or bacteria. When it comes to sugar-sweetened beverage consumptions, several studies reported SSBs as a major contributing factor to the increase in childhood and adolescent obesity (Danyliw et al., 2012; Duffy et al., 2012; Lasater et al., 2011). The effect of water quality and beverage preferences has several health implications, including the following:

- water-related disease outbreaks;
- children's and adolescents' consumption of large amounts of SSBs and intake of less water, which violates dietary guideline recommendations; and
- an increase in obesity and its associated chronic diseases.

This chapter further presented the historical trends of water quality and regulations in the United States and outlined the creation of responsible agencies for water management and operation. Furthermore, this chapter included an overview of children's and adolescents' water quality perceptions. Most of the findings obtained from the literature regarding the perceptions of water quality included not having good drinking water at the tap; taste, smell, and odor; and a lack of trust in municipal water. This finding remained consistent across all studies. Other researchers also indicated that people felt concerned about natural occurrences of substances and humanmade chemicals that may cause water contamination. Additionally, important findings, consistent with other studies, included the increase in the consumption of SSBs among children and

adolescents. Evidence suggested SSBs remained responsible for the increase in obesity among the study population.

The purpose of the study was to examine the etiology of water quality perceptions and beverage preferences of Black children and adolescents residing in two cities from a Midwestern state. This researcher has not discovered research about this topic, and the current study aims to fill this gap.

The information garnered from this research is useful for water quality management in small communities, and also for community health educators for the promotion of water quality information. Other groups who may benefit from this research include study participants who are the primary audiences and the municipal water authorities. The secondary audience of this study includes researchers who may use this research for their future studies. This study supports the positive social change because it illuminates the perceptions children and adolescents have about water quality, and their decisions to consume other beverages.

Chapter 3 will include an explanation of the nature of the study, the research design, and the methodology that was used to conduct this study. Additionally, careful consideration will be given to data collection, data analysis, issues of trustworthiness, and ethical concerns about research participants in the following chapter.

Chapter 3: Research Method

Introduction

The purpose of this phenomenological study was to examine the etiology of water quality perceptions and beverage consumption preferences of Black children and adolescents residing in two cities from a Midwestern state. This chapter will include the research methods used to address this topic. Additionally, I will provide a description of the study's participants, outline the recruitment procedures, and discuss the role of the researcher. I will also identify the data collection instruments and the approaches used to establish validity. The chapter also includes the ethical guidelines for the protection of research participants, as stipulated in the Walden University ethical code of conduct and the U.S. federal regulation on human subjects. Finally, I will discuss the data analysis and coding procedures.

Research Design and Rationale

RQ1: How do Black children and adolescents, who have a clear perception of water quality and beverage preferences, determine with whom they will compare themselves during their formative years?

RQ2: How have the comparison groups of Black children and adolescents influenced their perceptions of water quality and beverage preferences?

RQ3: How do Black children and adolescents view the opinions of others who do not share their perceptions of water quality and beverage preferences?

RQ4: How do Black children and adolescents handle the pressure to reconcile conflicting opinions regarding water quality and beverage preferences to assimilate into what they perceive to be their comparative group?

RQ5: How do the developmental perceptions of water quality and beverage preferences compare between the participant groups of Black children and adolescents?

Transcendental Phenomenological Study

I conducted a transcendental phenomenological study to examine the etiology of water quality perceptions and beverage preferences of Black children and adolescents in two cities from a Midwestern state. Moerer-Urdahl and Creswell (2004) listed two major approaches to phenomenology research: hermeneutic and transcendental. Hermeneutic phenomenology includes a process of reflecting and providing an interpretation of a text or a study in the past or present to achieve a meaningful understanding of issues (Moerer-Urdahl & Creswell). Transcendental phenomenology, on the other hand, consists of acquiring and collecting data to explain the essences of human experience (Moerer-Urdahl & Creswell, 2004, p. 1). In the context of transcendental phenomenology, the researcher looks at a "phenomenon with fresh perspectives and with an open mind, leading to the acquisition of new knowledge obtained from the essence of experiences" (Chun, 2013, para. 1). The transcendental phenomenological approach is useful for conducting face-to-face interviews, observations, and document review (Creswell, 2013; Moerer-Urdahl & Creswell, 2004; Patton, 2015).

I rationalized choosing the transcendental phenomenological method because it enables an investigation of the words of participants to determine themes regarding

shared meanings and lived experiences (Moerer-Urdahl & Creswell, 2004). Furthermore, the design contains systematic steps in analytical procedures and guidelines for constructing textual and structural descriptions (Creswell, 2013; Moerrer-Urdahl & Creswell, 2004). Researchers use the phenomenological method because of its utility for generating in-depth and detailed information or answers to critical questions (Creswell, 2013; Meyer, McCullough, & Berggreen, 2016; Patton, 2015). I also investigated the possibility of using other research methods (e.g., quantitative study methodologies) to examine the water quality perceptions and beverage preferences of children and adolescents; however, I did not use these other methods due to the emphasis on numerical computation, which was unsuited to the current study.

Role of the Researcher

Defining the the role and providing an accurate self-assessment of the researcher was relevant in the conduct of this study. I was part of the study and was involved at all stages of the research process. The fundamental roles of the researcher are to identify potential participants, conduct interviews, facilitate the transcription of the raw data, provide data analysis and interpretation, and remain thoroughly objective while performing his roles. Another important role of the researcher was to ensure the protection of research participants. I was the primary instrument for data collection and had no personal affiliation and professional relationship involving power over participants. However, because the participants in this study are minors, they were treated with due diligence and protected under the law. I remained professionally separated and adhered to the code of conduct established by the Institutional Review Board (IRB) of

Walden University. I also adhered to all federal regulations regarding the conduct of research with minors (USDHHS, 2015). Furthermore, I established a close relationship to learn as much as possible about the activities of the participants in their natural setting throughout the research process (Patton, 2015; Yin, 2016).

The researcher is an integral part of research and remained professionally balanced throughout the research process and was focused on the essence of the study (Patton, 2015). I built rapport and relationships with participants, which is a pivotal and valuable asset in the interpretation of data and research findings (Creswell, 2009; Patton, 2015). Additionally, as a researcher conducting a study that involves minors, I had a binding ethical obligation to provide both informed consent and child assent forms to all research participants and their parents or legal guardians. The informed consent contained full disclosure about the study, including a brief background, the purpose of the study, the research procedures, possible risks or benefits, and the rights and confidentiality of participants (Yin, 2016). The assent form included information about the research, such as the rights of the child as a participant. I am a Black African American living near to the two cities in a Midwestern state and have acquaintances in the two communities. These two communities represent central areas for socialization for study participants, as well as me.

Research Method

This section of the chapter encompasses participant selection logic, instrumentation, the method for pilot testing, recruitment strategy, and data collection. The chapter also contains a detailed plan for data analysis.

Participants

The research population included Black children and adolescents residing in the two cities from a Midwestern state. The USCB (2015) reported that Brooklyn Park population was 79,149 residents, of which 24.4% were Black or African American, and 29.0% are children and adolescents under 18 years old (USCB, 2015). The City of Brooklyn Center (2016) has an estimated population of 30,770, out of which 49.1% are White and 25.9% are Black or African American (USCB, 2015).

The selection of participants derived from the following criteria: participants must (a) be Black children and adolescents between the ages of 9 to 18 years; (b) have resided in either one of the two cities from a Midwestern state from infancy up to 8 years of age; (c) be able to read and write English (the researcher ensured that the interview questions were written to the literacy level of all participants, and a field test was conducted among few children to validate as to whether the questions were readable and understood by participants); and (d) willing to sign the child assent form, with a parent or legal guardians signing the informed consent form. Parents and children not willing to sign the informed consent and assent forms were excluded from the study. To determine how participants met the eligibility criteria, I asked for demographic information such as age, gender, grade level, and how long they have lived in their current community. These questions were relevant to determining the eligibility of participants.

Sampling Method and Size

I used purposeful sampling for this study because it aligns with the methods of a phenomenological study and is suited to reach and identify participants who have insight

about the study topic (Patton, 2015; Yin, 2016). I continued the data collection process as long as a new substantive information was acquired, or until saturation was achieved. The rationale of using purposeful sampling derives from the importance attached to an in-depth understanding of central issues (Patton, 2015). Purposeful sampling is also widely used in qualitative studies to identify and to select an information-rich sample with the effective use of limited resources (Patton, 2015). Furthermore, purposeful sampling can be used to identify important common patterns that cut across variation (Duan, Bhaumik, Palinkas, & Hoagwood, 2015).

The sample size for phenomenological research is somewhere between three and 15 participants (Creswell, 2013). Therefore, the anticipated sample size for this study was between three and 15 or 20. However, the data collection continued until saturation occurred. Patton (2015) described the logic and power of purposeful sampling in terms of information saturation, relying on small sample size to learn as much information from participants as possible. Francis et al. (2010) advised that people should not acquire a larger sample size due to ethical reasons to avoid waste of resources and participants' time. Furthermore, Mason (2010) suggested that researchers should not use too small a sample to keep the sample informative, reliable, and unique.

Instrumentation

The structuring of the interview questions for this study consisted of several steps. I initially developed the first draft taking into consideration how to obtain relevant information that would illuminate or provide insight into the research questions. I developed the interview questions based on four concepts that evolved from the research

questions including water and beverage intake, water perceptions, beverage preferences/choices, and peer and parental influence (social influences). The first draft contained 45 interview questions; seven individuals, knowledgeable in the field, reviewed the draft. The first individual was an epidemiologist from the National Center for Chronic Disease Prevention and Health Promotion at the CDC (2015); the second was a vice president of research and technology at Medtronic; the third person was a former instructor of qualitative research at Saint Mary's University of Minnesota; the fourth individual was an educator who has served as a superintendent for Minnesota and Maryland school districts and has vast experience working with children and adolescents; the fifth individual was a leading researcher in water promotion among school age children; the sixth individual was a researcher from Harvard; and the seventh individual was an expert in water quality perceptions.

The panel of the subject matter experts provided qualitative comments and suggestions, as well as recommendations on all interview questions except Questions 24 and 25, where two members did not provide any response. It was also recommended to shrink the interview questions to lessen participants' time burden, taking into consideration that subjects were minors. I made the necessary changes and incorporated the experts' suggestions, which resulted in a second draft that contained 25 interview questions. The second draft was sent out to all the subject experts to establish face validity. Based on the experts' evaluation and the thorough scrutiny of the 25 interview questions, I did another round of adjustment to the 25 questions and resubmitted it to all the experts. The experts responded to the questions with corrections of word choices and

structure, which resulted in a fourth draft. I made the fourth round of changes and submitted it to the panel. Based on experts' feedback, a fifth draft was subsequently developed as a final (Appendix A). This fifth draft remains as the final draft that was further field tested on November 13, 2016, with three Black children and adolescents (13- and 15-year-old girls from two cities in a Midwestern state and with a nine-year-old boy from another city in the Midwest. I conducted the actual pilot test after IRB approval. The field test was intended to further refine the interview questions. I also had two individuals with PhDs read through the entire set of questions for reliability and clarity. No further changes were made to the questions.

The group of experts that served on the content validity panel were each sent an e-mail asking if they would be willing to serve on the panel. I sent the e-mail requests to about 15 individuals. Of the 15, four agreed to form part of the panel, and three members were recommended by another expert, bringing the total to seven experts. Researchers have suggested a minimum of three panelists and a maximum of 10 (Polit & Beck, 2013, p. 491); the panel in this research was made of seven members, falling within these parameters. Researchers have also suggested that using a 4-point scale to avoid having a natural and ambivalent midpoint (Polit & Beck, 2013, p. 491). Each member was sent an e-mail with a link in surveymonkey.com to evaluate the interview questions, based on a 4-point Likert scale, including *(1) not acceptable (needs major modifications), (2) below expectations (some modification needed*), *(3) meets expectations (no modification needed),* and *(4) exceeds expectations (no modification needed).*

The majority of panelists presented their comments, suggestions, and explanations in a Word document. All the responses from the panelists were pooled to determine consensus and the validity of their judgments. The responses obtained from the panelists were similar across all items except items 24 and 25, for which two members of the panel did not provide a response. However, it was suggested that these items were essential, as reflected in content validity literature (Lawshe, 1975). After I incorporated all the comments and suggestions from the panelists, their consensus on the final draft demonstrated the essentiality of the items as either *meeting expectations* or *exceeding expectations*. According to Lawshe (1975), any item that has more than half of the panelists choose as essential has some degree of content validity (p. 567). The following represents Lawshe's (1975) content validity ratio formula:

$$\text{CVR} = \frac{n - N/2}{N/2}$$

I calculated the content validity ratio (CVR) based on the above formula, where *n* represents the number of panelists who evaluated the questions as (3) or (4), while *N* represents the total number of panelists (Lawshe, 1975). The panel of seven provided their assessments as (3) or (4) in this study; the CVR was calculated as 1 with a main adjusted value of .99 (Lawshe, 1975). The value of .99 satisfied the acceptance alpha level of .05 (Lawshe, 1975). The CVR of .99 reflects congruence among the panel and out of the 25 questions submitted to the panel, only two members of the panel did not provide a response to Questions 24 and 25. In addition, I calculated the mean of the content validity index (CVI) for the entire document and each interview question (Appendix D); the CVI was calculated as 0.96, and the CVR as .99. If Questions 24 and

25 were eliminated, the expected CVI would equal 0.92. However, because it falls within the accepted range, I retained the two questions based on the fact that more than 50% of the panelists agreed on the essentiality of the interview questions (Lawshe, 1975).

Procedures for Pilot Testing

In the pilot testing procedures, I addressed the following questions:

- What is the purpose of piloting?
- When is it appropriate to carry out the pilot test?
- Why is the pilot being conducted?
- Who are the participants?
- Where will the participants be selected?
- How will the pilot be implemented?

The purpose of doing a pilot is to field test the interview items and to ensure that the instructions and questions are easily understood by individuals who will resemble the study participants. The essence of pilot testing is to ensure the relevancy of interview questions and that they correctly capture the views and experiences of potential participants. Pilot testing for this study was conducted after the proposal was approved and the IRB granted the permission to do so. The pilot study was conducted to refine the interview questions for the main study. The pilot participants were Black children and adolescents, and they were similar to the subjects in the actual study. Participants were selected from two cities in a Midwestern state.

In this study, I recruited a small number (n = 4) of participants to take part in the pilot study, with two participants from each city. I sent out recruitment letter to parents

and legal guardians of children and adolescents asking their permission to allow their child/children to take part in a pilot test. Participants who expressed their willingness to participate in a pilot study signed an assent document and had the pilot participants' parents or legal guardians sign consent forms, and the schedule was planned for the pilot study. The pilot was conducted at the homes of participants and at two community centers. The data collected in the pilot are included in the study findings. The information obtained from the pilot test was used to refine items, and I conducted the pilot test using the same methos as the main study.

Before the pilot testing began, I explained basic information to the participant about the purpose of the main study, and they were informed about the importance of their feedback to the research process. I reassured participants that the results from the pilot test would only be used to refine the main interview questions. I explained the informed consent process, as well as the child assent forms. Participants were informed that the interview was audio taped. After the piloting testing, I thanked all participants for providing their valuable time during the interview and informed them that they could contact the researcher for any additional information. Following the pilot study, I immediately proceeded with the modifications to the interview protocols.

Procedures for Recruitment

The researcher used different strategies to recruit Black children and adolescents from two cities in a Midwestern state. A recruitment letter detailing the study purpose requested parents' or legal guardians' permission for their children and adolescents to participate in the study. The letters were mailed by the local post office in two cities from

a Midwestern state to homes based on zip codes. In addition, recruitment flyers were posted in African, Ancient, and other stores, with information about the study and how to become a participant, including the inclusion criteria. Furthermore, the researcher visited churches, and with the permission of the pastors, there were announcements regarding the study. The flyers and participants' letters were distributed in two cities from a Midwestern state. The letters included prepaid envelopes that allowed parents with potential participants to reply to the researcher. Eligible candidates who expressed a desire to participate in the study were given an informed consent form for the parents and an assent form for their child/children, and an official date and venue for the interview was established by the participants and the researcher. The readability scores of the research documents were determined using MS Word version 2013. The readability scores based on Flesch-Kincaid Grade level for assent form were 6.6, consent form 7.4, adult consent form 7.2, recruitment flyer 6.9, and letter to parents 7.0 respectively.

Data Collection

Data was collected in person through the use of a semistructured, in-depth interview with open-ended questions. The intent was to obtain rich, thick, in-depth information from participants regarding their water quality perceptions and beverage preferences. To enhance the data collection process, the researcher employed the use of an interview guide. The researcher strictly adhered to the interview protocol during the data collection. The interviews occurred in a relaxed environment, such as at participant's home or the community centers. I used a digital audiotape to record the interviews and to capture participants' responses. Before the interview, the tape was tested for functionality

and to ensure proper recording. The electronic data recording process allowed the interviewer to stay fully engaged with interviewees, as compared to a situation where the researcher has to take copious notes during the interview, which can sometimes be a distraction to both the interviewer and participants. However, I was prepared to take notes, most especially to capture important events such as body language, gestures, and other noticeable activities. As recommended in Yin (2016), I commenced the interview using nondirective grand tour questions, to allow participants to express their own opinions regarding water quality perceptions and beverage preferences. I used probe questions to further elicit detailed information from participants.

Based on the field test conducted on November 13, 2016, the interview was estimated to last between 30 to 35 minutes, and no further refinement to the interview questions was required. This time was further validated based on the outcome of the pilot test. I exhibited flexibility during the semi structured interviews. I was the person collecting the data, and data collection process was estimated to last for five days depending on data saturation. In a semi structured interview, as in this study, Francis et al. (2010) suggested that one can only obtain saturation by interviewing participants until no new data occurs. This suggestion represents an important concept that determines whether the study may have achieved adequate sampling for content validity. In this case, data collection continued until saturation occurs. At the conclusion of the interviews, participants received acknowledgment for their valuable roles in the research process, and the researcher ensured that he would be in contact with them throughout the research process. The end of the data collection process did not terminate the affiliation of the

participants from the study. The participants and their parents received information about the timeframe of the study.

As discussed earlier in Chapter 2, I used government sources for data collection to obtain information on water quality and factors associated with contamination. I also used governmental agencies' websites and the websites of relevant cities to gain additional information about the ethnicity and population distribution of participants. In addition, I conducted follow-ups with participants.

Data Analysis

Creswell (2013) and Patton (2015) described data analysis as a fundamental and challenging task for the qualitative researcher. Creswell further outlined the stages of data analysis as the following: the organization of data, conducting a preliminary read-through of the data, coding and organizing themes, representing the data, and forming an interpretation of the data (p. 179). Patton illustrated that no formula exists for determining significance. Hence, no means or ways exist for replicating the researcher's analytical thought processes. The burden of the analytical process is with the researcher, who must stay fully focused and be able to communicate the evidence of data clearly (Patton, p. 433).

Regarding the data analysis plan, I implemented the five stages, as described by Creswell (2013); moreover, as previously discussed in Chapter 1, the researcher analyzed collected data using Moustakas's (1994) framework for data analysis, which follows systematic, step-by-step procedures (Creswell). I used the concept of latent content analysis by paying special attention to the unit of analysis, meaning unit, code, and

theme/category (Vaismoradi, Turunen, & Bondas, 2013, p. 402). The aim of using latent content analysis includes examining data by breaking it up into small units of content, providing a descriptive analysis about the data, and then dissecting the original stories (Sparker, 2005).

In this study, I used an independent professional transcriber to transcribe the data. I read through the transcripts several times to assess for content and quality and to identify meaning units, words, and paragraphs that are alike and similar or dissimilar in meaning (Graneheim & Lundman, 2004). The meaning units were then abstracted and labeled with codes which provide a better interpretation of huge chunk of information into small units (Graneheim & Lundman). Finally, the underlying meaning that is considered the latent content of the categories was formulated into themes (Graneheim & Lundman). This process also helped distinguish between central and subthemes (Creswell, 2013; Ryan & Bernard, 2003; Vaismoradi et al., 2013).

I read deeply into the data and remained conscientious of identifying when a legitimate theme occurred, as demonstrated by Ryan and Bernard (2003). Ryan and Bernard outlined ways to identify themes from data as repetitions of topics/ideas, the use of metaphors and analogies, the shifts in topic (transitions), similarities and differences for comparison across units of data, and common connectors such as because, since, as a result, and so on. These mechanisms for identifying themes are useful because they facilitate the process of data analysis. I was very attentive in recognizing these cues for the identification of themes.

Moustakas's (1994) developed his framework that modeled the general process of data analysis, which entails the primary plan for analyzing data in this study. In the first phase, to minimize bias and the researcher's predisposition, full disclosure occurred that included a description of the researcher's experience. In the second phase, I thoroughly read through each participant's data several times to make sense of the meanings given regarding water quality perceptions and beverage preferences, and then developed a list of significant statements. Following this phase, I selected significant statements from participants' responses, listed them or horizontalized the data, and treated each statement as having equal dimensions.

I continued to develop a list of statements that were not repetitive or overlapping (Creswell, 2013). In the third phase, I categorized significant statements and grouped them into units or themes. In the fourth phase, I wrote about the participants' perceptions of water quality and beverage preferences and provided a textual description of their experiences. In the fifth phase, I wrote a structural description of participants' experiences, considering how these experiences occurred. I focused on the setting and the context in which participants experienced the phenomenon (Creswell, 2013). Lastly, added as the sixth phase, I wrote a composite description of the phenomenon by incorporating both textural and structural description (Creswell, 2013). As illustrated in Creswell (2013), this phase of data analysis provides the essence of participants' experiences, which represents the crux of phenomenological research. Based on these procedures, I established coding examples for each research question as follows:

RQ1: Water safety, beverage intake preferences, self-comparison;

RQ2: Comparison groups, influenced, perceptions;

RQ3: Viewed the opinions differ in perceptions;

RQ4: Peer influence, parental influence, conflicting opinions, assimilate; and

RQ5: Developmental perceptions, Black children adolescents.

Finally, the data analysis illuminated the significance of the findings and ways in which the study contributes to the body of research in the field of public health.

Issues of Trustworthiness

The basic fundamental concept of trustworthiness in the context of a qualitative study includes the notion that the findings remain authentic, rigid, credible, and increase the readers' confidence levels (Curtin & Fossey, 2007). Qualitative studies, most especially those of narratives, require rigor and quality to gain recognition in the field (Loh, 2013). The accuracy and credibility of research findings can derive from the use of several strategies, as suggested by Creswell (2013), who recommended researchers to use multiple techniques for increasing the validity in qualitative studies; this facilitates the ability of the researcher to assess the accuracy of the findings and to convince readers about such accuracy. Patton (2015) and Yin (2016) also attested to the use of multiple strategies as a means of strengthening or increasing credibility. The strategies presented by Creswell and other researchers (Curtin & Fossey, 2007; Loh, 2013; Yin, 2016) include triangulation of different sources of data, the use of member checking, the use of rich and thick descriptions to convey the findings, reflexivity, prolonged engagement, peers debriefing, and the use of an external auditor. Table 1 includes a partial list, drawn from

the original Table 1 of Lincoln and Guba's (as cited in Loh, 2013, p. 5) trustworthiness criteria and summary of teachings.

Table 1

Trustworthiness Criteria and Techniques

Criteria	Techniques
Credibility (internal validity)	Prolonged engagement
	Triangulation
	Peer debriefing
	Member checks
	Independent qualitative researcher
Transferability (external validity)	Thick description
Dependability (reliability)	Triangulation of methods
Confirmability (objectivity)	Confirmability audit

Note. Adapted from Table 1 of Lincoln and Guba's (1985; as cited in Loh, 2013, p. 5) trustworthiness criteria and techniques.

Credibility

In this study, I used multiple strategies to increase credibility, such as triangulation of data and data sources, the use of interviews as the primary source of data collection, and documents reviewed as secondary sources (Curtin & Fossey, 2007). The researcher triangulated data using different sampling strategies and sources of data collection to obtain diverse opinions from participants regarding water quality perceptions and beverage preferences (Curtin & Fossey, p. 91). The use of triangulation to gain holistic views of participants provides a means of acquiring a better understanding of water quality perceptions and beverage preferences, which will increase the credibility and validity of the findings (Curtin & Fossey, 2007). I also used peer debriefing to seek feedback from other qualitative researchers and contacted an independent qualitative researcher to assist with the coding and theming of data. Based on the codes and themes

obtained from the researcher and independent expert, I established the level of agreement. I also put the analysis and findings down for a few days and revisited them later to ensure that the conclusions were still the same. Furthermore, reviewing documents provided the opportunity to gather historical information about the research setting, and it provided insight about the trends on perceptions regarding water quality. I used other strategies to increase the credibility of the findings, including the following:

- member checking to verify the accuracy of data collected from research participants, because such strategy provides a second chance for the participants to comment on the findings (Curtin & Fossey, 2007);
- prolonged engagement, as the researcher spent significant time with participants in the field to develop an in-depth understanding of the problem and to build a trusting relationship to gather adequate information (Patton, 2015); and
- The researcher detailed systematic procedures in the research process (Yin, 2016).

The proper use of these strategies will increase the credibility and enhance the overall validity of the study (Creswell, 2013; Patton, 2015; Yin, 2016). To further address the issue of trustworthiness, I used additional measures, such as transferability, dependability, and confirmability.

Transferability

Transferability refers to the possibility that the findings of a study will have the same interpretation when transferred to other settings with similar situations, or how

these findings can apply to other subjects (Thomas & Magilvy, 2011). To establish transferability, I provided a thick description of study participants, their demographics, and geographic boundaries (Thomas & Magilvy). Furthermore, to maintain transferability, I ensured that participants' views and opinions remained accurately described and documented as presented (Curtin & Fossey, 2007)

Dependability

Dependability determines the consistency of findings if a researcher wished to replicate the study (Creswell, 2013; Thomas & Magilvy, 2011). Strategies to enhance dependability in this study included asking peers to participate in the data analysis process. I employed triangulation of methods to gather data such as documents review and interviews. I also made use of research protocol and an audit trail that contains a detailed description of the procedures of the research process. The research protocol included an interview guide and core questions with other documents to serve as a guide for other researchers who may express interest in conducting similar studies (Shenton, 2004). The audit trail, as suggested by Carcary (2009), contained all the research decisions and activities throughout the study. I maintained a log that details all research activities, including memos, research journals, and other documents that relate to the data collection and analysis (Carcary).

Confirmability

Confirmability entails the researcher's awareness, openness, reflexivity, and ways in which the findings remain true and represent participants' opinions accurately (Curtin & Fossey, 2007; Thomas & Magilvy, 2011). To ensure confirmability, I made a

conscious effort to follow the research protocol, did not allow preconceptions to affect the study, and ensured that the findings accurately reflected the participants and not the researcher. For instance, I did not lead the direction of the interview by asking the participants about clarification of slang words. I also strived for confirmability by explicitly providing reasons for methodological decisions in this study (Shenton, 2004). I use audit trails that provide step-by-step details of the research process, which serves as a map for traceability (Shenton).

Ethical Procedures

The burden is with the researcher to protect the rights and safety of research participants at all times. Since the participants of this study were children and adolescents, the dignity, rights, and well-being of the group were essential for the conduct of this research. I stayed committed to and worked with the Walden University Ethics Committee and the IRB to ensure that the study followed the institution's ethical code of standards, as well as those stipulated in the U.S. federal guidelines. The informed consent and assent forms were issued to parents or legal guardians and children to maintain this commitment.

The parent's informed consent form, as outlined in Walden University guidelines, included the research purpose, data collection method, risks and benefits associated with the study, confirmation that the participants are volunteers, information about protecting the confidentiality of participants, and the contact information of both parties. The child assent form contained pertinent information about the study, such as the research procedures and time allotment for the interview; hence, it mirrors that of the informed

consent form. However, these two documents are separable, and one cannot be substituted for the other, as determined by the IRB.

Children are among the vulnerable groups who are most likely to fall victim to malpractice in research; for this reason, ethical guidelines are enforced to protect this vulnerable population. To safeguard participants' information, I stored obtained data in a secure vault that was only accessible to the researcher. Additionally, I encrypted digital files of participants' information and stored these on a secure, personal computer. For confidentiality, I only identified participants using a code. For instance, Participant 1 received the code p1; Participant 2 received the code p2, and so on.

Summary

To summarize, I have outlined the methodological procedures associated with this qualitative phenomenological research. The goal of this study was to examine the etiology of Black children's and adolescents' perceptions of water quality and beverage preferences. I have described the research design and the strategies used to increase reliability and validity of findings. Additionally, I discussed the data collection and analysis methods, and the use of ethical procedures to safeguard research participants who are considered among the most vulnerable groups of society. Chapter 3 serves as a foundation for the discussion of the findings that Chapter 4 will include. The following chapter will describe the conduct of the pilot study, the setting, participant demographics as well as the study results.

Chapter 4: Results

Introduction

The purpose of this transcendental phenomenological study was to examine the etiology of water quality perceptions and beverage preferences of Black children and adolescents residing in two cities from a Midwestern state. I used an in-depth, open-ended, semistructured interview approach to gather data on the lived experiences of children and adolescents regarding beverage preferences and the way they think about water quality. A transcription service was retained to transcribe the recorded interviews. Following the transcription of the interviews, I used member checking to confirm that the findings accurately reflect the lived experience of participants. Member checking, as discussed by Lincoln and Guba (as cited in Creswell & Miller, 2000), is a strategy for establishing credibility in a qualitative study. Using this strategy, I shared the findings with 10 participants (50%) of the study subjects (20), allowing them to provide comments and to identify any contradictory information that was collected during the interviews and reported in the study results. I then received confirmation from all 10 participants about the validity of their responses. I initiated the data analysis and extracted themes related to the research questions from those responses.

This study was guided by questions based on Festinger's (1954) SCT, which helped me to remain focused. The research questions were as follows:

> RQ1: How do Black children and adolescents, who have a clear perception of water quality and beverage preferences, determine with whom they compare themselves during their formative years?

RQ2: How do the comparison groups influence the perceptions of water quality and beverage preferences among Black children and adolescents?

RQ3: How do Black children and adolescents view the opinions of others who do not share their perceptions of water quality and beverage preferences?

RQ4: How do Black children and adolescents handle the pressure to reconcile conflicting opinions regarding water quality and beverage preferences, to assimilate into what they perceive to be their comparison group?

RQ5: How does the developmental perceptions of water quality and beverage preferences compare between the participant groups of Black children and adolescents?

In the remainder of this chapter, I will discuss the process by which the study was conducted, providing a detailed description of how the proposed plan was implemented and the findings were obtained. This chapter will include the research setting and a description of participants' demographics. Additionally, I will discuss the challenges that were associated with the recruitment of research participants and how these issues were overcome. Furthermore, I will provide the details about data collection process, describing where participants were enrolled and interviewed, and how data were recorded and transcribed. I will explain the process of data analysis and how the coding procedure was developed in addition to the synthesis of codes into categories and themes. The procedures for establishing the trustworthiness of the findings are also presented. Finally, descriptions of the findings and results obtained from the lived experiences of children and adolescents regarding the etiology of water quality perceptions and beverage

preferences will be presented to demonstrate pattern and themes in relationships to the research questions. The chapter ends with a summary of the study and a transition to Chapter 5.

Pilot Study

The purpose of the pilot study was to test the interview questions and research procedures so adjustments could be made before the collection of the actual data. The pilot was also intended to elicit adequate responses from participants about the etiology of water quality perceptions and beverage preferences. The pilot study was conducted after obtaining approval from the Walden IRB (approval number 05-12-17-018829). The pilot study consisted of four Black children and adolescents who met the inclusion criteria. Among the four pilot participants were two children and two adolescents. The participants for the pilot study were contacted through recruitment flyers, letters of participation, and word-of-mouth. I distributed flyers at grocery stores, barber shops, African stores, laundromats, and churches in two cities from a Midwestern state. I also sent out 90 letters of participation through the U.S. mail to residents with zip codes in two cities from a Midwestern state. Out of 90 letters of participation, 50 yielded the responses of parents (55.55%), and 40 letters (44.44%) did not yield any response. The interviews were conducted using semistructured, open-ended questions, and all interviews were audiotaped with a digital voice recorder (WS-852). The interviews were conducted at the homes of participants and lasted between 20 and 25 minutes. I conducted the pilot study using the first four participants in the main study. All four participants were informed about their role in this study.

The pilot study ensured that the interview questions, such as “How do you feel about tap water safety?” and “How would you think of your beverage choices in the past compared to the present?” were easily understood by school-aged children and elicited appropriate responses. Participants were asked to share their understanding of the various questions. The pilot study also helped determine that it would take participants 20 to 25 minutes to complete the interviews. Children took a longer time to complete the interviews (M = 25; SD = 4.08) as compared to adolescents (M = 20; SD = 4.08). Based on the data obtained and the analysis performed, it was determined that no additional changes or refinement were necessary for the interview questions and the data analysis procedures.

Setting

I collected data in two cities from a Midwestern state. I selected the community Centers as the venues for the interviews. Some of the parents of participants were unable to bring their children to these venues due to their schedules and preferred that the interviews be conducted at their homes. However, I conducted most of the interviews at community center. The interviews held at the homes of participants were conducted in a quiet environment. At the homes, a table was prepared with two chairs in the backyard or on the back porch. Overall, the setting did not impact or influence participants or disrupts the interviews. Most importantly, no other personal or organizational conditions appeared to impact the participants or influence the interpretation of the study findings.

Demographics

The demographics and the characteristics of participants were limited to age at the time of the study, gender, city of residence, and the length of time the participant has resided in the two cities from a Midwestern state. All participants were fluent in reading and writing English. Furthermore, children and adolescents were the participants in this study, their involvement was voluntary, and they were not to provide demographic information for their parents. Table 2 shows the relevant data and is followed by a narrative analysis of what the table contains.

Table 2

Characteristics of Participants

Participant Identifier	Age	Time Resided	Participant Identifier	Age	Time Resided
Participant 1-0247	13	8	Participant 11-0298	12	8
Participant 2-0532	17	9	Participant 12-0580	16	8
Participant 3-0471	12	8	Participant 13-0325	14	8
Participant 4-0768	17	8	Participant 14-0190	15	12
Participant 5-0908	10	8	Participant 15-0120	11	12
Participant 6-0407	15	9	Participant 16-0822	16	12
Participant 7-0242	15	10	Participant 17-0984	10	12
Participant 8-0430	11	10	Participant 18-0802	13	10
Participant 9-0614	9	8	Participant 19-0121	18	12
Participant 10-0987	11	8	Participant 20-0346	18	9

Based on Table 2, all the study participants have resided with their parents in the two cities in a Midwestern state for at least 8 years and up to 12 years. The average

length of time participants lived at their current residence was 9 years. The mean age of participants was 13.65, and the standard deviation was (2.83). Among the 20 participants, there were more female participants, numbering 14 (70%), as compared to male participants, numbering 6 (30%). An equal number of 10 (50%) participants were selected from each of the two cities in a Midwestern state.

Data Collection

I initially anticipated the data collection period to last for 1 week; however, the data collection required close to three months because I did not take into consideration all the challenges associated with data collection. All 20 participants completed the demographic information and were eligible to take part in the study. To protect the confidentiality of all participants, I assigned all 20 participants unique codes that were randomly generated using the rand function in Excel. The codes were used throughout the study, and the identities of participants were not disclosed.

The data collection commenced on May 21, 2017, and ended on July 18, 2017, lasting nearly three months. Interviews were held at the community centers and at the homes of participants. I conducted one to three interviews on a weekly basis. The interviews were audiotaped and transcribed. Table 3 shows relevant information about the data collection.

Table 3

Relevant Information for Data Collection

Month	No of People Interview	The Mean and SD	Length of Time/ Minutes	Length of Time/ Minutes
May	(n = 20)	Mean = 2 SD 1.414		
5-21-2017	1		25	25
5-27-2017	2		20	20
5-28-2017	3		25	25
5-31-2017	2		20	25
		M = 2		
June		SD = 1.414	25	25
6-10-2017	3		25	20
6-17-2017	2		25	25
		M = 2.33		
July		SD = 1.63	25	25
7-13-2017	3		25	20
7-14-2017	2		25	20
7-18-2017	2			
			M = 23.5	SD = 9.165
For entire data collection period		M = 2.22 SD = 0.7		

I conducted eight interviews during May: one was held on the 21st, three on the 28th, two on the 27th, and two on the 31st. In June, I conducted five interviews: three were held on the 10th, and two on the 17th. During July, I conducted seven interviews: three were held on the 13th, two on the 14th, and two on the 18th. The mean and the standard deviation of the number of interviews conducted for the three months were 22.2 (0.7). Additionally, the average and the standard deviation of the length of time it took for participants to complete the interviews were 23.5 (9.165). On a monthly basis, the mean and the standard deviation of the number of interviews conducted in May and June were

2 (1.414). The mean and the standard deviation of the number of interviews conducted in July were 2.33 (1.63). Each of the interviews lasted from 20 to 25 minutes, which is slightly below the anticipated 30 to 35 minutes. I also conducted follow-up interviews with the participants to confirm and verify previous responses on the amount of water consumed daily. Other sources of data collection included field notes and document reviews. During the interviews, I collected field notes and described the research setting. I also collected secondary data from government and city databases to obtain information about ethnicity.

I encountered circumstances that may be anticipated in research with children and adolescents. First, parents who consented for their children to participate in the study needed to know more about the research. I spent about 30 minutes each with parents in the field providing explanations about the informed consent and child assent forms and building the trust of participants. Second, schedule complications sometimes required that interviews be rescheduled for the convenience of the participants. Third, the data collection took place at a time that schools were closed, and some of the parents indicated that they could not be of help at this time because their children had traveled out of state for vacation and were not available. Despite these challenges, the data collection was succesful.

Data Analysis

Once data were collected, I organized and analyzed the data and extracted relevant information from the results of the analysis. I used open and axial coding to create labels for chunks of data and to identify relationships among codes. Table 4

reflects the results of the coding and theming. I used latent content analysis to reduce the data into small chunks or units of content and provided a descriptive analysis of participants' water quality perceptions and beverage preferences. I read and re-read the transcripts several times to identify meaning units, words, sentences, or paragraphs that had similarities, differences, or relationships within the data. I used hand coding to develop themes. I coded each meaning unit to describe the essence of the lived experiences of Black children and adolescents' water quality perceptions and beverage preferences. I categorized the meaning units and labeled them with codes. I repeated the same process as new themes emerged during the analysis of the entire data document, paying special attention to repeated or overlapping themes. I formulated the underlying meaning into central themes and subthemes. I prepared the final write-up about participants' experiences regarding the etiology of water quality perceptions and beverage preferences. Table 4 shows the seven primary themes and several subthemes that emerged from the study, along with relevant data.

Table 4

Primary Themes and Subthemes Obtained from Interviews and Relevant Data

Central Themes	Subthemes	% NP* Concern No Concern SSBs*	% PP*	% Bottled/ glasses, filtered Water	% Bottled Tap water	% SSB Pref. tastes	% Water Pref.*	% Drink Fewer SSB	% Drink more SSB*	% Similar intake, No interest	% Parent peer No parent
1. Feeling of rejection of taste of tap water	Tap water taste different; tap water is not good, has lot of chemicals	80%	20%								
2. Feeling of acceptance of taste bottled water	Bottled water tastes good, and good sources of drinking water		100%	85%	15%						
3. The desire for SSBs	Drinking SSBs is normal, its taste good, its provided energy					*85%*	*15%*				
4 Peer to peer comparison	The intake of SSBs is similar or fewer to other							50%	25%	15% 10%	
5. The push for SSBs	Parent purchased SSBs, SSBs and parties, peer and SSBs										65% 5%, 30%
6. Desire for water and SSBs	The desire to drink water/SSB water/SSB intake			1 to 5 glasses bottled a day		1 to 6 Cans SSBs a day					
7 Concerns about SSBs	Concern of diabetes, excess fat and calories, lot of sugar	80% 20%									

SSB* = Sugar-Sweetened Beverages, NP* = Negative Perceptions, PP* = Positive Perceptions, Pref.* = Preferences

Themes

Theme 1: Feeling of Rejection of Taste

This theme emerged from the responses to interview question IQ9. Participants were asked about their perceptions of the etiology of tap water quality. Sixteen out of 20 participants (80%) mentioned negative perceptions they have about tap water quality, and four participants (20%) had positive perceptions about tap water. For instance, participant 1-0247 indicated that tap water is not good for drinking because it is filled with minerals and harmful chemicals. Participant 5-0908 said, “I drink tap water as the last option when there is no bottled water or filtered water.” Participant 19-0121 also said, “Tap water tastes bad and terrible,” and, participant 11-0298 said, “The faucet is rusty, and the water is contaminated.” The majority of the participants (80%) indicated that their parents do not drink tap water. Therefore, they would not drink it either. Most of the participants discussed that their parents never drank water directly from the tap and they could not remember drinking tap water. A 13-year-old participant indicated drinking tap water five years ago when their water machine broke. Another participant mentioned that she stopped drinking tap water when she was much younger after her parent had identified that it was not good. In addition to the perceptions of tap water, participant 12 said, “Yes. My parent talked about how the tap water tastes bad.” The etiology of water quality perceptions of Black children and adolescents originated from the parents’ or legal guardians’ perceptions.

Theme 2: Feeling of Acceptance of Taste

This theme emerged from interview question IQ10. Participants were asked about their perceptions of bottled water. All the participants (100%) in this study provided positive perceptions about bottled water. The majority of the participants mentioned that bottled water is convenient, and it tastes better than tap water. Among the 20 participants, 85% drank only bottled and filtered water and 15% drank both tap and bottled water. When it comes to the etiological perceptions of bottled water among children and adolescents, participants mentioned that the parents introduced them to drinking bottled or filtered water. A nine-year-old participant indicated that she never drank tap water and cannot remember ever drinking it, and she drinks bottled water at home. Another ten-year-old participant discussed that they drink spring water (filtered gallons) that the parent purchased from the store. Another 12-year-old participant's opinion, that bottled water is safe than tap water, was similar to those of others in this study. One participant said, "No. For all my life, I really do not remember drinking tap water, we only drink bottled water that my parent purchased."

Theme 3: The Desire or Preference for Sugar-Sweetened Beverages

This theme emerged from interview questions IQ6, 1Q16, and IQ24. Participants were asked about their preferences for SSBs versus plain water. Among the 20 participants, 17 participants (85%) said they would prefer sugar-sweetened beverages over plain water. The remaining three participants (15%) said they would prefer water over SSBs. The majority of the participants expressed their preference for SSBs over plain water. The sweet taste and flavor were major contributing factors driving children

and adolescents' consumption of SSBs. To identify the etiology of beverage preferences among children and adolescents, the majority of the participants indicated that their parents purchased SSBs for consumption at home. For instance, one participant (P1-0247) indicated that the parent purchased SSBs once every two weeks and he drank pop daily or twice a week. Another participant (P2- 0532) confirmed that he drank SSBs in because they are available, and the parent purchased a different assortment of drinks when shopping for groceries that includes juice and pop. Furthermore, some participants noted that they developed their preferences for taste in the past and drank more as compared to today. Participant 7- 0242 said, "Yes. I drink pop, but our mom does not let us have much because it is not healthy." Based on these and many more, it is reasonable to link parents as the major source of the developmental perceptions and preferences of Black children and adolescents, while friends and the environment remain influential factors.

Theme 4: Peer-to-Peer Comparison

When it comes to peer-to-peer comparison of SSB consumption, the theme emerged from interview questions IQ7, IQ22, IQ24, and IQ25. There were similarities and differences in participants' responses. Out of 20 participants, 10 participants (50%) said they drink fewer sugar-sweetened beverages or other flavored drinks than children of their age. Five participants (25%) said they drink more SSBs as compared to children of their age. Three participants (15%) said their consumption of SSBs is similar to other children of their age. Two participants (10%) did not show any interest in the

consumption of SSBs. Theme 4 focused on the comparison of SSB consumption among peer groups, while theme 5 discussed the factors influencing SSB intake including peers.

Theme 5: The Push for Consuming Sugar-Sweetened Beverages

This theme derived from the responses of participants to IQ20 and IQ23. I obtained several responses from participants about factors that might have influenced their SSB consumption. In response to IQ20 and IQ23, 13 participants (65%) mentioned that parents purchased SSBs at home and peers influenced their SSB consumption. Among the 13 participants (65%), four participants (20%) were not influenced by peers. One participant (5%) also said their parents do not purchase SSBs, but peers influenced them. Lastly, six participants (30%) said their parents does not purchase SSBs and peers did not have any influence on their SSB consumption. However, the taste was a major factor in the intake of SSBs. How do peers influence the choice of SSBs? For instance, one participant 7- 0242 said:

> Yes. I was influenced by friends to drink SSBs, at parties and birthday parties and stuff like that, they always have tubs and coolers filled with ice and a bunch of sugary drinks, usually a small number of water bottles, and I drank pop because most of my friends were drinking it.

Participant 12 - 0580 also said, “Yes. I have been influenced by friends to drink SSBs, when we go out to eat, we always ordered for food, and none of us ever get water because we are all together, so we are all influenced to drink the same stuff.” Based on the participants’ responses, the etiology of beverage preferences emanated from the parents; however, friends and taste remain influential factors.

Theme 6: The Desire for Water and SSB Intake

This theme emerged from responses to IQ1 and IQ6. Participants provided answers to IQ1 and IQ6 regarding the amount of water and SSBs consumed on a typical day. The majority of the participants in this study mentioned that on a typical day they drink from one to five glasses or bottles of water a day. When it comes to the consumption of SSBs, participants drank from one to six cans a day.

Theme 7: Concerns about SSBs

This theme emerged from interview question IQ18. The majority of participants expressed some health concerns about the intake of SSBs. Among the 20 participants, 16 participants (80%) expressed different concerns about SSBs, and four participants (20%) did not show any strong concern about SSBs. Among the 80% that expressed concerns, eight participants (40%) said SSBs contain a lot of sugar and are not safe or healthy for the body, two participants (10%) mentioned that SSBs have a lot of calories. Also, two participants (10%) said SSBs have excess fat, and another two (10%) indicated that they are concerned about getting diabetes. One participant (5%) said, “My dentist told me I should stop drinking Mountain Dew and stuff because it is not safe for my teeth,” and another one participant (5%) said, “some of them could rot your teeth.”

To identify discrepancies or contradictory information in the data, I read and re-read the transcripts several times. The thorough review of the transcripts revealed one discrepancy: one participant discussed drinking 25 glasses of water a day. To confirm or disconfirm this information, I had another visit with the participant and asked about the

quantity of water consumed in a day. The participant noted drinking four to five glasses of water a day, which disconfirmed the previous statement of 25 glasses of water a day.

Evidence of Trustworthiness

Credibility

The basic concept of trustworthiness in a phenomenological inquiry entails that the findings remain authentic, rigid, credible, and increase the readers' confidence level (Curtin & Fossey, 2007). The credibility of this study was built through the use of multiple strategies. I approached participants and their parents with respect and humility, I developed their trust, and I created an honest relationship with them. I also spent a significant amount of time in the field engaging with participants and their parents. To increase credibility, I used data triangulation to obtain data from two communities in a Midwestern state. The goal was to obtain diverse opinions from participants regarding the etiology of water quality perceptions and beverage preferences.

Transferability

To establish transferability, I provided a thick description of study participants, their demographics, and the study's geographic boundaries, as suggested by Thomas and Magilvy (2011). An accurate and detailed account of participants' views and opinions was documented and presented. I also provided systematic, step-by-step procedures for the research process that are easily understood and can be used by researchers who are interested in implementing a similar study. Furthermore, as discussed by Lincoln and Guba (cited in *Statistics Solutions*, 2017), I provided a detailed account of the daily lived experience of participants. Most of the parents who consented for their children to

participate in this study were working and were involved in other social activities, such as attending family events, and having or attending barbecues. The parents of participants had to schedule the interviews during their days off from work, and no interview was conducted during a social event.

Dependability

To establish dependability in this study, I employed consistency through the research process. I developed 25 open-ended interview questions that were scrutinized and approved by subject-matter experts in the field. In addition, I used the services of a peer who did a second code of the data. However, based on the feedback, the initial results did not provide accurate descriptions of themes. Another round of coding was initiated, I met with my second coder, and we independently revisited the coding process. Following the second review of the coding, we met again to compare the outcome of the coding. We explored areas of agreement and disagreement. Based on the comparison, there was a 100% agreement on the derived themes. However, we had slight differences in the given names for each theme. For example, “I dislike the taste of tap water” was one given name, and “Feeling of rejection for tap water taste” was another given name. Therefore, to reconcile the differences, we negotiated an appropriate name for major themes. To increase dependability, I used an external reviewer to assess and provide recommendations for the coding process. Furthermore, I used a research protocol that guided the data collection, and I ensured that all interview questions were asked in the sequence described in the guide. To further enhance dependability, I used an audit trail that detailed an account of the research activities during the study.

Confirmability

Confirmability entails the researcher's awareness, openness, and reflexivity, and how the findings remain true and represent participants' opinions accurately (Curtin & Fossey, 2007; Thomas & Magilvy, 2011). To enhance confirmability, I read and re-read the transcripts several times to ensure that the data accurately represented the views and opinions of participants. I used a method of bracketing to avoid potential bias. I had to set aside my prejudices, preconceived notions, and judgments about the perceptions of water quality and beverages preferences, to allow the actual data collected from participants to be the only source of analysis. Furthermore, as noted above, the second round of coding and analysis were performed by the subject-matter expert. We met to compare the outcomes of the coding, and to explore areas of agreement and disagreement. Based on the comparison, there was 100% agreement. However, there was a misalignment in the naming of the themes. To reconcile the misalignment, we negotiated appropriate names for major themes.

Results

The results section includes Table 5, which contains relevant data, and a narrative analysis based on the research questions.

Table 5

Participants' Responses About SSB Intake and Water Quality Perceptions

Participants' responses	% of responses
Similar intake of SSBs*	15%
Less intake of SSBs	50%
Drink More SSBs	25%
Parent Purchased SSBs	65%
Don't drink SSBs	10%
Peer influence on peer to consume SSBs	65%
Tastes and flavored as factor	30%
Parent not purchasing SSBs	5%
Peer with similar perceptions water quality	45%
Peer with different perception	50%
Not aware of other perceptions	5%
Perception has not changed about water quality	70%
Perception has changed about water quality	30%

SSBs* = Sugar Sweetened Beverages

Research Question 1

The participants' responses to IQ7, IQ22, and IQ24 provided answers for Research Question 1: How do Black children and adolescents, who have a clear perception of water quality and beverage preferences, determine with whom they will compare themselves during their formative years? The responses to IQT7, IQ22, and IQ24 demonstrated that Black children and adolescents compared themselves with those who were similar to them. In terms of percentages, among the 20 participants, three participants (15%) responded that they drank the same amount of SSBs as compared to other friends, 10 participants (50%) indicated that they drink fewer SSBs as compared to other friends. Furthermore, five participants (25%) said that they drink more SSBs as compared to other friends, and two participants (10%) showed no interest and described

that they do not drink SSBs at all. For instance, participant 1-007 said, “In my friend group, I think we are pretty much similar, we do not drink soda like that, but we drink the electrolyte energy drinks.” Furthermore, Participant 4-0768 said, “I feel we all drink similar amounts because teenagers usually drink pop or soda more than they drink water. That is just my belief.” Regarding with whom children and adolescents compare themselves during their formative years, several responses were obtained from participants. In response to IQ7, Participant 2-0532 discussed that their parent “purchased different assortments of juice and flavored drinks at home that way I have the options to drink what I want to drink.” Furthermore, in response to IQ22, participant 2 -0532 noted that their intake of SSBs was similar to other friends, and the friends always have juice and pop available in their homes. Participants’ responses provided the justification that the etiological perceptions of beverage preferences originated from the home and those with whom children and adolescents have a close relationship, such as their parents.

Research Question 2

The participants’ responses to IQ14 and IQ23 answered Research Question 2: How have the comparison groups of Black children and adolescents influenced their perceptions of water quality and beverage preferences? Responses show that peers influence their water quality perceptions and beverage preferences. Among the 20 participants, 13 (65%) responded that parents purchase SSBs, and friends have influenced them to consumed sugar-sweetened beverages. Six participants (30%) reported the consumption of SSBs was influenced by taste and flavor, and one participant (5%) reported that their parents did not purchase SSB at home, but peers influenced them. In

response to IQ23, Participant7-0242 said, “Yes, I have been influenced by friends. At parties and birthdays parties and stuff like that, they always have tubs and coolers filled with ice and bunch of sugar drinks, usually a few water bottles.” Also, participant 12-0580 said:

> Yes, when we go out to eat, we always order food, and none of us ever get water. But I always, like, if we go to McDonald’s, I always get sweet tea. But if we go to Caribou, I have to get a coffee or something, just like them, because we are all together, and are influenced to drink the same stuff.

The majority of the participants demonstrated how the comparable group of Black children and adolescents influenced their perceptions of water quality and beverage preferences. However, it is indicative that the etiology of youths’ perceptions and preferences emanated from the parents, while friends, social events, and taste remain influential factors.

Research Question 3

The participants’ responses to IQ15 and IQ25 answered Research Question 3: How do Black children and adolescents view the opinions of others who do not share their perceptions of water quality and beverage preferences? The responses to IQ15 and IQ25 demonstrated how Black children and adolescents could find a common balance or manage conflicting opinions with others who did not have the same perceptions of water quality and beverage preferences. In response to IQ15, participant 2-0532 said, “I feel like my opinions differ from others, most of my friends does not like drinking tap water,

they prefer bringing bottled water in school, and they do not like drinking school water." In response to IQ25, participant 2-0532 said:

> I don't really view them negatively, because I feel that we are just on a different levels when it comes to beverages; I feel like our knowledge level of what we drink is different; I have more knowledge of the benefits of water than some people may do; some may have false perceptions on flavored water or flavored soda; how they may feel better or taste better, I feel it all our perceptions of what we drink, I guess.

In response to IQ15 and IQ25, participant 12-0580 said, "I have different perceptions of tap water quality and beverage preferences." Participant 12-0580 said:

> When we were in my class, we actually took all the drinks that we drink, and we looked it up, researched how many cubes of sugar that was, that actually showed us how much sugar we were taking in, and that made lot of people in my class disgusted and not want to drink sugar-sweetened beverage (SSB) anymore. So, I feel, people need to be taught and shown it, just let them know they are putting a lot of sugar in their body, but with water, there is no sugar.

In response to IQ25, participant 18-0802 described those who did not share their perceptions of beverage preferences as not knowledgeable of the health consequences. Also, participant 18-0802 said, "I just think they are a little bit undereducated in what is good for you and what is not." Four participants (20%) demonstrated their understanding of the benefits of water, as well as the health consequences of sugar-sweetened beverages. Participants not drinking tap water and carrying bottled water in school are

behaviors or perceptions that are inherited from the home; such perceptions emanated from the parents and the environment

Research Question 4

The participants' responses to IQ15 and IQ25 were used to answer Research Question 4: How do Black children and adolescents handle the pressure to reconcile conflicting opinions regarding water quality and beverage preferences to assimilate into what they perceive to be their comparison group? Participants' responses to IQ15 and IQ25 demonstrated how Black children and adolescents handle the pressure to reconcile conflicting opinions. Out of 20 responses, nine participants (45%) had similar perceptions about tap water quality, and 10 participants (50%) had different perceptions about tap water quality. One participant (5%) indicated they did not know if friends have a similar feeling about tap water safety or quality. In response to IQ15, participant 16-0822 said, "Well, everyone has their beliefs, my belief might be different from other people. So, I don't think the way I think about tap water is similar to others." In addition, participant 10-0987 said, "My belief is somewhat different because some of my friends like drinking tap water." The responses from the participants demonstrated a tone of reconciliation despite the differences they hold in beliefs and opinions. Accepting the opinions of other is the basic tenant in reconciling with others.

Participants 12-0580 and 18-0802 were fully knowledgeable about their water quality and the health consequences of SSBs. Their expressions and intent to inform others who are not aware of the health benefits of water, and the health debilitating

effects associated with SSBs, demonstrate reconciliation and assimilation into a comparison group.

Research Question 5

The participants' responses to IQ12 and IQ19 were used to answer Research Question 5: How do the developmental perceptions of water quality and beverage preferences compare between the participant groups of Black children and adolescents? In response to IQ12, participant 1-0247 said, "My perceptions of tap water had changed from the past, in the past when I was younger I drank the tap water." Among the 20 participants, 14 (70%) indicated that they had not changed their perceptions about tap water quality since they were younger and still have a negative perception of tap water. Six participants (30%) expressed that their perceptions about tap water have changed. When it comes to comparing current beverages choices to the past, participant 1-0247 said, "I used to drink a lot of water back then, but now I have lowered down on drinking water, I drink sometimes pop now, but back then I didn't drink a lot of pop." Participant 15-0120 said, "I drink more sugar-sweetened beverages now than the past." The responses from participants showed that these perceptions and preferences play a critical role in the behaviors of children and adolescents. Again, the etiology of youths' perceptions and preferences can be attributed to the parents and the environment.

Regarding discrepant and or nonconforming data, in the entire study, I discovered only one discrepant case. One participant discussed drinking 25 glasses of water a day, which did not accurately represent individual water intake per day. To confirm or disconfirm this information, I had another visit with the participant and asked about the

quantity of water consumed on a typical day. The participant reported drinking four to five glasses of water a day, which disconfirmed the previous statement of 25 glasses of water a day.

Summary

The purpose of this qualitative phenomenological study was to examine the etiology of water quality perceptions and beverage preferences among Black children and adolescents. I recruited 20 participants from two cities in a Midwestern state. I designed 25 interview questions that were validated by subject-matter experts in the field of qualitative research. The responses to the interview questions provided a better understanding of the lived experiences of children and adolescents regarding their water quality perceptions and beverage preferences. In addition, participants' responses demonstrated that peers, parents, and other social factors play a significant role in the developmental perceptions of the youths.

This chapter described the pilot study, the research setting, participants' demographics, data collection, data analysis, and the evidence of trustworthiness. In Chapter 5, I will present and discuss the interpretation of the findings, provide the study limitations, make recommendations for action and future research, address the implications for social change, and offer a conclusion.

Chapter 5: Discussion, Recommendations, and Conclusion

Introduction

The purpose of this phenomenological study was to examine the etiology of water quality perceptions and beverage consumption preferences of Black children and adolescents residing in two cities from a Midwestern state. This study is important because it sheds light on a topic that has not been clearly understood. According to Kumar, Park, and Onufrak (2015) and Onufrak et al. (2014), youths' social networks may not only influence perceptions of water quality but also impact their fluid intake preferences. Other studies have shown that children and adolescents' water quality perceptions and beverage preferences are further affected by taste and safety concerns (Doria, 2010; Hu et al., 2011; Huerta-Saenz et al., 2012; Teillet et al., 2010; Onufrak et al., 2014). The current study also suggests that Black children and adolescents' perceptions and preferences originate in their parent's perceptions of water quality and beverage preferences.

In this chapter, I summarize the key findings of the study. The study participants, Black children and adolescents, described their lived experiences related to their perceptions of water quality and their beverage preferences. The participants' rejection of the taste of tap water was an important phenomenon that emerged from the study. The majority of the participants in this study linked the negative perceptions of tap water quality to bad taste and described it as containing chemicals that are not good for drinking. The youths' tap water intake was affected mostly by these perceptions, which originated from their parent's perceptions of tap water quality. Some of the participants

discussed that they were only introduced to drinking filtered water by their parents and never drank directly from the tap. For instance, one participant indicated that her parent is informed and knowledgeable about the quality of their tap water, and therefore, she would not risk drinking it without proper filtration. On further questioning her about why she would not drink unfiltered tap water, she said because it contains calcium. Similarly, another participant indicated that tap water has a bad taste and they prefer not drinking it. Again, the participant's perceptions came from a parent.

Some of the participants indicated that they never drank tap water because their parents introduced them to drinking bottled water. These participants said that their parents purchase bottled water for the household. The purchase of bottled water is another indicator that the etiological perceptions of tap water quality among the Black youths emanated from the home and from those with whom participants have close relations, such as parents or legal guardians. Such perceptions or preferences can be linked to immigrant status (Onufrak et al., 2014). Parents who migrated from other countries developed their perceptions based on previous experiences with water quality.

Although parents are a major source of perceptions of tap water, some participants described the bad taste they experience themselves when drinking it. Other participants expressed similar perceptions that their community tap water has a bad taste. But overall, the etiology of Black children and adolescents' water quality perceptions originated from the parents. On the other hand, all the participants noted positive perceptions of bottled water. Bottled water was found to be the major source of drinking water for participants. The participants described bottled water as tasting good and being

a convenient source of drinking water. Most of the participants indicated that they preferred bottled water over tap water.

The desire or preference for SSBs was found to be another important phenomenon. Again, the etiology of these preferences lies with the parents, and the youths' personal preference for taste and flavor also remains an influential factor. Additionally, the environment was a precursor or influencer of perceptions and preferences. Prior studies found the media to be a significant influencer in the beverage preferences of children and adolescents (Kashif, Ayyaz, & Basharat, 2014; Romero-Fernandez, Royo-Bordonada, & Rodriguez-Artalejo, 2013; Ustjanauskas, Harris, & Schwartz, 2014). The media play a role in children's purchasing and sedentary behaviors; however, in this study I did not solicit participants' views of the media.

When comparing peer-to-peer SSB consumption, the findings varied. Some participants said they drank a similar quantity to others, some drank fewer than others, and others drank more SSBs than their peers. Overall, participants drank from one can to six cans of SSBs a day. When it comes to water intake, most of the participants drank from one to five glasses or bottles of water on a typical day. Although participants' intake of SSBs and water in term of quantity was not the focus of this paper, the results are suggestive of the need for further study of that issue, because a greater intake of SSBs and a lower intake of water poses a significant impact on the health of the study population.

Some participants expressed concerns about the harmful effects of SSBs, whereas other did not express any or strong concerns about SSBs. Those who expressed their

concerns indicated that SSBs have a lot of sugar and are not healthy for the body, have a lot of calories and excess fat, can cause diabetes, and can rot the teeth. Other participants noted that their primary doctors advised them of the dangers associated with the consumption of SSBs, most especially to the teeth. Some other participants indicated that they played sports and learned from their coaches that SSBs were not good. One participant indicated that they had performed an experiment in class to identify the contents of SSBs and the discovery did show a lot of sugar. Despite the fact that some children and adolescents expressed concern regarding SSBs and the harmful effects associated with them, participants showed a greater preference for SSBs. The participants also perceived that tap water is bad for them and contains chemicals, and they choose not to consume it. Further investigation is warranted to inquire why participants consumed SSBs and chose not to drink tap water, despite their perceptions that both have risk factors.

Interpretation of the Findings

The current study examined the etiology of water quality perceptions and beverage preferences of Black children and adolescents. Perceptions of water quality and beverage preferences are well studied and documented (Huerta-Saenz et al., 2012; Jain et al., 2014; Nickelson et al., 2014; Merkel et al., 2012; Saylor et al., 2011). The current study extends knowledge in the discipline by comparing the findings with what has been found in the literature. In this section, I will explain how this study adds to current literature.

Feeling of Rejection for Taste of Tap Water

The majority of participants in this study expressed their dissatisfaction with the quality of tap water. Sixteen out of 20 participants (80%) mentioned negative perceptions they have about tap water quality, and four participants (20%) expressed positive perceptions about tap water. Most of the participants considered the tap water in homes as bad, noting that it does not taste good and is not fit for drinking. For example, participant 1-0247 said, “Tap water is filled with minerals and harmful chemicals.” Participant 19-0121 said, “Tap water tastes bad and terrible,” and, participant 11-0298 said, “The faucet is rusty, and the water is contaminated.” With these and many more responses, the majority of the participants in this study ascribed negative perceptions to tap water quality. The etiology of tap water perceptions among Black youth originated from the parents as discussed in the key summary, and the interpretation of the findings in this study represents the opinions of participants as evidenced in the data. The findings in this study are consistent with other studies (American Heart Association, 2015; Doria, 2010; Hu et al., 2011; Huerta-Saenz et al., 2012; Larson & Stone-Jovicich, 2011; Patel et al., 2010) that attributed water quality perceptions to poor taste, appearance, and safety concerns. For example, Larson and Stone-Jovicich found negative community perceptions of water quality; participants classified the water as terrible, brown, with a funny taste and smell, and reported that it stained clothing. Patel et al. added that people associated negative perceptions with tap water. The findings from this current study confirmed those of previous studies (Berisha & Goessler, 2013; Chirenda, Srinivas, & Tandlich, 2015; Schade et al., 2015; Yasin, Ketema, & Bacha, 2015) that described

human-made pollution or natural occurrences to be associated with the contamination of drinking water quality. The results of this study also confirmed with Edward (2015) who found waterborne lead in drinking water in Virginia.

Feeling of Acceptance for Taste of Bottled Water

The findings showed that all 20 participants (100%) in this study expressed positive perceptions of bottled water. For instance, participant 6-0407 said, “Bottled water is more purified than tap water.” Among the 20 participants, 85% drank only bottled and filtered water and 15% drank both tap and bottled water. The majority of participants described similar perceptions of bottled water, as well as other water that is filtered by other means, such as bottled water is pretty clean and good, bottled water is convenient and tastes better, and bottled water is well filtered. These findings are dissimilar to the work of Gorelick et al. (2011), who showed that almost half of participants provided positive perceptions about bottled water.

Bottled water was the major source of drinking water for participants, and this preference was consistent with Huerta-Saenz et al. (2012), who found that bottled water was the choice of beverage for participants who were predominantly African American. The negative perceptions people have about tap water quality are associated with the purchase and consumption of a greater quantity of bottled water within the study population. Again, the etiological perceptions of bottled water among Black children and adolescents originated from the parents. Further, parents who migrated from other countries developed their perceptions based on previous experiences with water quality, and seek to find an alternative source of drinking such as bottled water (Onufrak et al.,

2014). The work of Delbuono (2015) showed a record high consumption of bottled water that approximated $12.9 billion, near 10.9 billion gallons over the course of 52 weeks in the United States. The demand for bottled water has increased, and this trend is estimated to continue. The consumption of a greater quantity of bottled water among disadvantage Black communities poses a significant financial burden on their already stressed incomes.

The Desire or Preferences for Sugar-Sweetened Beverages

The preference for SSBs among Black children and adolescents was the most common phenomenon among participants. Among the 20 participants, 17 participants (85%) said they would prefer SSBs over plain water. The remaining three participants (15%) said that they would prefer water over SSBs. Several domains need consideration to understand the origin of children and adolescents' perceptions and preferences. The current research supports previous findings that perceptions or preferences begin to develop during childhood because it is during the formative years that people develop their lifelong nutritional habits (Desbrow et al., 2014). Moreover, physical, social/emotional, and cognitive development are important domains of child health (WHO, 2015), and the home environment can influence perceptions and preferences (Van Ansem et al., 2014). Some participants noted that they developed their preferences for the tastes of SSBs in the past and drank more of it as compared to now, and such preferences originated from their parents. Other participants indicated that they prefer drinking pop or sweet drinks when they are with friends, because they taste better and are relaxing, and water is too plain. Again, the etiology of Black youths preferences emanated from their parents, whereas peers remain an influential factor. The findings in

this study showed that participants had stronger preferences for SSBs as compared to water. The findings in this study resemble previous studies (Rader et al., 2014; Nickelson et al., 2014; Drewnowski et al., 2013b) that show children and adolescents drink more SSBs and do not consume the required amount of water a day.

Peer-to-Peer Comparison

I asked participants about how their consumption of SSBs compares to their friends. Children and adolescents compared their SSB preferences to those who were similar to them (Festinger, 1954). For example, Participant 12-0580 said that her friends visit Caribou and Starbucks all the time to drink coffee that contains a lot of sugar, and when they are all together, they drink and eat similar things. The SCT demonstrates that people engage in social comparisons either for self-evaluation or to maintain a positive self-image (Corcoran et al., 2011; Festinger, 1954). Participants who drank fewer SSBs compared themselves with those who drank more; this is an illustration that participants compared themselves with others that they outperform (downward comparison; Corcoran et al.; Festinger). When it comes to how children handled the pressure to reconcile conflicting opinions, Participant 2-0532 said, “I do not view them negatively. I considered them as having limited knowledge of what they drink, and others might have false perceptions of flavored water, flavored sodas, its all about our perceptions of what we drink.” Furthermore, Participant 11-0298 said, “They are not thinking on the bigger picture, they are not thinking about what they are taking into their body, and only focusing on the taste, they need to learn that water is better as compared to flavored drinks.” When there are differences in opinions and pressure in reconciling the

differences among groups, the common phenomenon of reaching an agreement is through a process described by Festinger: the most superior person in the group will influence others who disagree with him or her. Overall, the essence is for the group to reach an agreement and to reconcile the differences in opinions regarding their perceptions of water quality and beverage preferences, to assimilate into what they perceived to be their comparative group.

The Push for Consuming SSBs

Participants revealed that their perceptions or preferences were impacted whenever with parents at fast food restaurants, such as McDonald's. Again, one can conclude that the etiology of SSB preferences among the youths emanated from the parents. The finding in this current study is consistent with the works of Van Ansem et al. (2014) and Luszczynska et al. (2013) that parents with intermediate and low socioeconomic status consumed SSBs at high levels, and SSBs were available at home compared to parents with high socioeconomic status.

The majority of the participants indicated that along with taste and their parents, other social factors influenced their perceptions or preferences. Social events and gatherings, such as parties and barbecues, were major indicators of peer influence on participants' perceptions and preferences. Participant 1-0247 described parties and events as places where children normally congregate with other children to play and have fun, and on such occasions, they have similar preferences for foods. Similarly, Dallazen and Medeiros (2014) reinforced the evidence that peers have a significant influence on children's preferences. Overall, most participants showed that their perceptions or

preferences were influenced by their peers, while fewer participants said that peers did not influence their perceptions or preferences.

The Desire or Drive for Water and Sugar-Sweetened Beverage Intake

Children and adolescents drink a greater number of SSB and less water than the recommended intake (Drewnowski et al., 2013b). Drewnowski et al. found that many children did not meet the Dietary Reference Intake (DRI) value for water consumption, as recommended by Institute of Medicine (IOM). According to Drewnowski et al., 75% of children between the ages 4 to 8 years, 87% of girls between 9 to 13 years, and 85% of boys 9 to 13 years failed to meet the IOM standard. In this study, the responses from participants about the intake of water and SSB on a typical day showed that children and adolescents drank about one to five glasses or bottles of water a day. When it comes to SSBs, participants drank from one to six cans of SSBs on a typical day. The participants' water and SSB intake preferences were self-responses and therefore, an estimate; their self-responses do not necessarily provide an accurate measure of their drinking behaviors. This research was not a longitudinal study, and the researcher did not do a follow up to monitor participants' water and SSB drinking behavior over a period. However, the responses obtained from participants provided a reasonable justification that most of the participants were not meeting the recommended Dietary Reference Intake (DRI, Drewnowski, et al., and were consuming a greater quantity of SSB as also evidenced in Nickelson et al. (2014) and Rader et al. (2014).

Concerns or Sentiments about Sugar-Sweetened Beverages

Some participants in this study showed concern regarding the negative health effects associated with consuming a greater quantity of SSBs. On the other hand, some did not show strong or any concern about the dangers or the consequences associated with drinking SSBs. Those with concerns believed that participants who were unconcerned did not understand the harmful effects of SSBs. For instance, participant (P12-0580) said, “They are not thinking on the bigger picture; they are not thinking about what they are taking into their body and only focusing on the taste, they need to learn that water is better as compare to flavored drinks.”

The concerns of participants included that SSBs contain a lot of sugar and are not healthy for the body, have a lot of calories, and have excess fat. Additionally, other participants indicated that they were concerned about getting diabetes, while others noted that their primary doctor advised them about the effect SSBs have on the teeth. Based on the responses of other participants, one can see that the primary doctor did play a positive role in educating children and adolescents preferences of SSBs. The findings in this study show these perceptions to be consistent with the problems indicated in previous studies (Laverty, Magee, Monteiro, Saxena, and Millett, 2015), that SSBs are linked with obesity and diabetes among children and adolescents. Wang et al. (2013) associated higher intake of SSBs to be responsible for a greater fat development, and Patel and Hampton (2011) acknowledged that adolescents consumed such high-calorie beverages.

Limitations of the Study

The researcher considered potential limitations to trustworthiness in the conduct of this study, including the weaknesses of the study design. The qualitative method has certain limitations, such as the generalizability of the findings. Generalizability is the aim of quantitative methods and not the focus of qualitative research. Due to the nature of the qualitative study, the findings of this study can't be generalizable or transferable to other Black populations. I conducted a purposeful sampling of 20 participants (*N=20*). The researcher assumes that all participants in this study are Black children or adolescents from the ages 9 to 18 years residing in two cities from a Midwestern state. This sample size can't be considered a limitation. However, the inability of participants to reflect on and articulate the richness of their lived experiences related to the phenomenon could be a limitation. The third limitation of this study is recall bias. To avoid this form of bias, I provided participants enough time before answering to reflect and think through a sequence of events in their life history. The fourth limitation that could influence the results is interpretation bias. To avoid interpretation bias, I was attuned and sensitive to the cultural world of participants by carefully listening, understanding, and interpreting their responses. The fifth limitation that may have resulted in this study is analysis bias. To avoid or minimize such bias as a researcher, I had to put aside all predispositions and take a holistic view of participants' perspectives. The sixth and significant limitation of this study is the failure of the researcher to explore the impact that the media may have played in the etiology of water quality perceptions and beverage preferences of participants. Despite these limitations, this study provides an in-depth account of the

etiology of water quality perceptions and beverage preferences among Black children and adolescents.

Recommendations

The findings in this study revealed areas of concern that require further recommendations. There is the need to encourage tap water consumption through community health education and promotional programs. There should be regular community tap water exhibitions or symposiums where the community residents can go to taste their tap water and also receive other information. The beneficiaries of such a program include the target audience, municipal water authority, and community residents. Programs of this nature will help alleviate fear and shape the perceptions people have about tap water quality. Similarly, the municipal water authority needs to create more community engagement by periodically informing the public about tap water testing and results. Such results need to be disseminated through a variety of communication channels that penetrate a wide spectrum of the community. The municipal water authorities need to coordinate with community health workers (CHW) and the members of the community in designing culturally appropriate water quality messages that can be disseminated by trained health educators in a community setting. The promotion of community drinking water is important because it alleviates people's concerns about their drinking water. The current statewide public engagement and partnerships initiated by Governor Mark Dayton to improve the quality of water in Minnesota is one of the best strategies for reducing the burden of the problems associated

with water contamination. It is the goal of the governor to improve water quality in Minnesota 25% by 2025.

There are initiatives to limit the availability of SSBs among children and adolescents, such as the nutritional program in schools that prohibit the sales of certain foods and beverages to students. Despite these initiatives, policymakers must review the ethical considerations regarding the sale and marketing of SSBs to youths, by examining the burden of harm to youths versus the societal benefits. Prohibiting the sale of and access of SSBs to minors may yield significant results, as similar policies that prohibit cigarette and an alcohol sale to minors have proven effective. There is the need to also prohibit the use of the supplemental nutritional assistant program (SNAP) for the purchase of SSBs. Furthermore, there is the need for more research that will focus on parents' and children's education in the home setting, since the dietary habits of children begin at home.

Implications

Implication for Positive Social Change

The findings from this study have the potential to generate positive social change in the lives of children and adolescents and society in general. The results from this study may be of value to the public health and the medical communities, in that they may provide a deeper understanding of the underlying determinants that shape Black children and adolescents' perceptions of water quality, and how this influences beverage choices. More precisely, understanding how people associate risk perceptions of water quality may aid environmental health educators in crafting communication strategies and

educational programs that best meet the needs of the target population by promoting health literacy. Health literacy empowers people to make informed decisions that can reduce health risks, and ultimately increase their quality of life. Improving one's quality of life benefits not only the individual but also the greater society of which the person is a part. Furthermore, the findings from this study may promote positive social change by increasing public awareness of the risks, myths, and other determinants that shape the etiological perceptions and preferences of Black youth. By gaining a deeper understanding of the etiology of children and adolescents' water quality perceptions and how those perceptions influence their beverage choices, the medical and public health communities can work together to develop intervening strategies. These may aid young consumers in making healthier decisions, which will lessen avoidable health factors that contribute to certain chronic and potentially debilitating diseases. This study may serve as a springboard for future empirical research focusing on the etiology of water quality perceptions of Black youth and their influence on beverage choices, not only within the United States but also abroad. Finally, this study will promote positive change in society by enlightening the participants, thus encouraging healthier choices.

Methodological, Theoretical, and Empirical Implications

The results gathered from this study can be added to existing body of knowledge regarding the etiology of water quality perceptions and beverage preferences among Black youths. The information obtained from Black children and adolescents about their water and beverage intake, water perceptions, beverage preferences and choices, and

peer, parental, and social influences is relevant in fulfilling some of the gaps in the literature.

The theoretical framework that guided this study is Festinger's (1954) SCT. Social comparison theory best explains the relationships between perceptions, preferences, and peer-to-peer comparison. In the context of social comparison theory, people compare their opinions to others for various reasons such as enhancement, verification, and improvement (Hoorens & Damme, 2012). Participants in this study compared themselves with others using a variety of dimensions. For instance, participants compared their perceptions and preferences to those who were similar to them for accurate self-evaluation (Barnes & Spray, 2013). On the other hand, other participants who drank fewer SSBs and more water compared themselves to those who drank a greater amount of SSBs and less water for self-motivation (downward comparison, Barnes & Spray). People are self-motivated when they compare themselves with those they are slightly better than with similar situation. Furthermore, participants did compare their perceptions and preferences with those who were superior to them for improvement (upward comparison). For instance, one participant explained that she drank more SSBs than her friends and needed to stop drinking a greater amount of SSB because the doctor advised that it is not good for the teeth. The SCT was appropriate and provided useful insight for this study.

Recommendations for Practice

Black children and adolescents are consuming a greater quantity of sugar-sweetened, high-calorie beverages and less water, which represents a potential public

health concern. It is during the formative years that children begin to develop their perceptions about water quality and beverage preferences, and their quality of health is also influenced by their family, neighborhood, and society. Since the dietary habits of children begin at home, it is important to make every effort to enlighten parents to their role in reducing obesity among Black children and adolescents. Rader et al. (2014) discussed that primary care physicians and health educators were the recommended sources for advice on how to limit the consumption of sugar-sweetened beverages. According to Rader et al., the majority of the patients indicated that they would prefer the recommendations from their primary care physicians, while others prefer a health educator. However, one pitfall is the clarity or quality of information the patients obtained from the primary care providers. How the information is perceived by the patient, and if the patients understand the information, is critical. It is relevant to ensure that the information disseminated by the primary care provider is presented in a format that the patient understands.

Conclusion

This transcendental phenomenological qualitative study was designed to examine the etiology of water quality perceptions and beverage preferences among Black children and adolescents residing in two cities from a Midwestern state. The decision to focus on the perceptions and preferences of Black youths was based on evidence that negative perceptions of tap water are common, particularly among minority and low socioeconomic status populations (Onufrak, Park, Sharkey, & Sherry, 2013). These perceptions may be responsible for the lower intake of water and greater consumption of

sugar-sweetened beverages (Onufrak, Park, Sharkey, & Sherry). In addition, it is during their formative years that children begin to develop their perceptions about water quality and beverage preferences. The results from this study showed that the majority of the participants expressed negative perceptions about the quality of their tap water, and all the participants expressed positive perceptions about bottled water. Again, the majority of participants expressed their preference for sugar-sweetened beverages (SSBs), while fewer showed dislike or no interest in the consumption of SSBs. It is important to note that fewer participants were knowledgeable about the problems or consequences posed by SSBs and were concerned about its intake. The findings from this study revealed that participants' perceptions and preferences emanated from the parents or legal guardians.

The findings in this study support the claims made by the World Health Organization (WHO, 2015) that the early stage is the most critical period of the life of children; physical, social/emotional, and cognitive development is important domains of child health. The lived experiences related to the developmental perceptions of water quality, and beverage preferences of participants suggest the formative years as the period during which youths develop their nutritional habits. The findings revealed that Black children and adolescents' perceptions and preferences originated from the parents, while peers remain an influential factor. The negative perceptions children and adolescents have about tap water quality as reflected in the findings suggest the need for the implementation of health education and promotional programs on tap water. The greater intake of and preference for SSBs among participants as demonstrated in the findings also necessitate community health education at home.

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Appendix A: Interview Guide

Note: All questions are open-ended.

Research Question 1:

How do Black children and adolescents, who have a clear perception of water quality and beverage preferences, determine with whom they will compare themselves during their formative years?

Research Question 2

How have the comparison groups of Black children and adolescents influenced their perceptions of water quality and beverage preferences?

Research Question 3:

How have Black children and adolescents viewed the opinions of others who did not share their perceptions of water quality and beverage preferences?

Research Question 4:

How have Black children and adolescents handled the pressure to reconcile conflicting opinions regarding water quality and beverage preferences to assimilate into what they perceived to be their comparative group?

Research Question 5:

How do the developmental perceptions of water quality and beverage preferences compare between the participant groups of Black children and adolescents?

Demographic Information

Gender	M	F
Age		

Which Cities You Currently Live: Brooklyn Park _____ or Brooklyn Center _____

Water and Beverage Intake:

1 How many glasses (16 oz.) or bottles of water (16 oz.) do you drink on a typical day? (Include tap and bottled water.)

2 Do you drink tap water in your home, water fountains, or water bottle filling stations?

3 How long has it been since you stopped drinking your tap water? (Follow up question for those not drinking tap water) scape pattern for question 2

4 Where else do you get drinking water? (Water fountains, bottled water, etc.)

5 If you drink less water than other children or teens of your age group, why do you drink less water?

6 On a typical day, how many times do you drink a can, or (12 oz. bottle) of soda or pop, such as Coke, Pepsi, Sprite or energy drinks?

7 How would you compare the amount of (12 oz.) sodas or flavored drinks you drink to children or teens of your own age?

8 How does your consumption of sugary beverages today compare to your consumption in the past?

Water Perceptions:

9 How do you feel about tap water safety?

10 How do you feel about bottled water?

11 Do you feel that your tap water at home is safe for drinking? (The city running water supply at the tap)

12 How do you think your beliefs about the safety of your tap water have changed since you were younger?

13 Has someone in your family or circle of friends ever told you that your drinking water smelled?

14 Do any of your family members or friends not trust the safety of their tap water? Why do you think they do?

15 Do you feel that the way you think about the safety of your tap water is similar or different to the way your friends think about the safety of tap water? What about your family?

Beverage Preferences/Choices:

16 Do you prefer sweet testing drinks like pops or other sweet flavored drinks (Coke, sprite, sport drinks, etc.) over plain drinking water?

17 If you drink soda or flavored drinks, why do you drink them?

18 Do you have any concerns about drinking sweet drinks or drinks that have sugar in them?

19 How would you think of your beverage choices in the past compared to the present?

Peer and Parental Influences (Social Influences):

20 Do your parents or caregivers purchase soft drink, pops or flavored drinks to consume at home? How often?

21 Do you drink more or less soda or flavored drinks when you are with your parents? How often?

22 How would you compare the amount of pops or flavored drinks you drink to other friends?

23 Have you been influenced by your friends to drink sweetened drinks? How?

24 How would you compare yourself with people like you in choosing pops or flavored drinks as opposed to water?

25 How do you view others in your circle of friends who think that drinking flavored drinks or pops is not a problem?

Appendix B: Letter to Parents or Legal Guardians

To Parents or Legal Guardians

Date: _____

Dear sir/Madam:

My name is Forkpayea Johnson and I am a doctoral candidate at Walden University. I am conducting dissertation research about the etiology of water quality perceptions and beverage preferences among children and adolescents in your community. There are a vast number of studies when it comes to adults' perceptions of water quality, however, children and adolescents have not been represented in such studies. This research will uncover children's and adolescents' water quality perceptions and the reasons behind their beverage choices and preferences, which are currently not well understood. Therefore, I am kindly requesting your permission for your child to be part of this study.

I realize that your time is important to you and will appreciate your consideration to allow your child participate in this study. I will be glad to have a 10-minute meeting with you either at a coffee shop so as to get to know you better and to schedule a convenient time for the interview.

Please contact me at your earliest convenience to schedule a date and time that we can meet. My telephone number is [redacted] and you can also e-mail me at [redacted]. I look forward to hearing from you soon.

Forkpayea Johnson
Doctoral Candidate
Walden University

Appendix C: Content Validity E-mail

Greetings:
While there have been several researchers on children's and adolescents' health, little research has used children as participants. Researchers have continuously used parents as a proxy for studies involving children, an approach that does not provide an accurate measure of children's views and opinions about their own health. Furthermore, there are few qualitative studies on children's and adolescents' perceptions. I have proposed to conduct a qualitative study on the etiology of water quality perceptions and beverages preferences among children and adolescent between the ages 9 to 18 years.

I am conducting a qualitative study with open-ended questions designed to allow children and adolescents provide their experiences and opinions about water quality and their decisions to consume other beverages. Therefore, I am assembling members to serve on a content validity panel that will advise me on the validity of my interview questions. I am kindly asking you to assist me in this regard.

I am providing you with a link to the Survey Monkey website to access the survey. The survey consists of 25 core questions and five research questions. The research questions will appear at the top and the interview questions will be under each research question. I am asking you to please rate the interview questions based on a 4-point Likert scale as follows: 1= not acceptable (Need Major Modifications), 2 = below expectations (some modification needed), 3 = meets expectations (no modification needed), 4 = exceeds expectations (no modification needed). Please also provide suggestions for revisions of the questions.
Thank you in advance and your help is really appreciated.
Forkpayea Johnson
Cell: [redacted]
Work: [redacted]
[redacted]

Appendix D: Content Validity Ratio and Content Validity Index

Item	E1	E2	E3	E 4	E5	E6	E7	Tot	Mean	CVR	CVR
1	1	1	1	1	1	1	1	7	1.625	0.99	0.99
2	1	1	1	1	1	1	1	7	1.625	0.99	0.99
3	1	1	1	1	1	1	1	7	1.625	0.99	0.99
4	1	1	1	1	1	1	1	7	1.625	0.99	0.99
5	1	1	1	1	1	1	1	7	1.625	0.99	0.99
6	1	1	1	1	1	1	1	7	1.625	0.99	0.99
7	1	1	1	1	1	1	1	7	1.625	0.99	0.99
8	1	1	1	1	1	1	1	7	1.625	0.99	0.99
9	1	1	1	1	1	1	1	7	1.625	0.99	0.99
10	1	1	1	1	1	1	1	7	1.625	0.99	0.99
11	1	1	1	1	1	1	1	7	1.625	0.99	0.99
12	1	1	1	1	1	1	1	7	1.625	0.99	0.99
13	1	1	1	1	1	1	1	7	1.625	0.99	0.99
14	1	1	1	1	1	1	1	7	1.625	0.99	0.99
15	1	1	1	1	1	1	1	7	1.625	0.99	0.99
16	1	1	1	1	1	1	1	7	1.625	0.99	0.99
17	1	1	1	1	1	1	1	7	1.625	0.99	0.99
18	1	1	1	1	1	1	1	7	1.625	0.99	0.99
19	1	1	1	1	1	1	1	7	1.625	0.99	0.99
20	1	1	1	1	1	1	1	7	1.625	0.99	0.99
21	1	1	1	1	1	1	1	7	1.625	0.99	0.99
22	1	1	1	1	1	1	1	7	1.625	0.99	0.99
23	1	1	1	1	1	1	1	7	1.625	0.99	0.99
24	1	1	1	1	0	0	1	5	1.625	0.66	0.66
25	1	1	1	1	0	0	1	5	1.625	0.66	0.66
											0.9636
									Mean I - CVI = 0.96		

Appendix E: Recruitment Flyer

Attention

Do you know that there is a study going on in your two communities, Brooklyn Park and Brooklyn Center, about children's and adolescents' water quality perceptions and beverage intake preferences? If you'd like to be involved in the study, take one envelope. This envelope contains letter of invitation that requesting the permission of parents or legal guardians for their children to take part in the study. Also included are informed consent and child's assent form.

To qualify for the study you must meet the following requirements:

- You must be 9 to 18 years old.
- You must have lived in Brooklyn Park or Brooklyn Center from infancy up to 8 years.
- You must be Black or African American.
- Must be able to read and write English.

A $10 gift card will be given to each participant who qualifies.

If you have any questions, feel free to contact Forkpayea Johnson at 763-300-7512.

Screening Protocol

Subject Study #: _____

Demographic Information

First Name _____ Last Name _____

Age _____

Male _____ Female _____

Which Cities You Currently Live: Brooklyn Park _____ or Brooklyn Center

_____

Inclusion Criteria

1. Are you from the age 9 to 18 years? Yes_____ No_____
2. Signed the Informed Consent Document Yes_____ No_____
3. Signed the child's assent form Yes ____ No _____
4. Are you currently living in Brooklyn Park? Yes _____ No _____ Number of years _____
5. Are you currently living in Brooklyn Center Yes _____ No _____ Number of years _____

Exclusion Criteria

1. Ages not from 9 to 18 years Yes_____ No_____
2. Have not lived in Brooklyn Park for up to 8 years Yes ____ No ____
3. Have not Lived in Brooklyn Center up to 8 years Yes _____ No _____
4. Don't read and write English Yes _____ No _____

Contact Information: Phone: _____ E-mail:

_____