



# Caregivers' Psychosocial Factors Underlying Sugar-Sweetened Beverage Intake Among Non-Hispanic Black Preschoolers: An Elicitation Study<sup>1,2,3</sup>

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Childhood obesity;  
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The purpose of this study was to explore caregivers' beliefs and perceptions regarding serving sugar-sweetened beverages (SSBs) to non-Hispanic black preschoolers. The Theory of Planned Behavior (TpB) was used as the framework for conducting elicitation interviews among a sample of ( $n = 19$ ) caregivers. Thematic coding of interview transcripts revealed that the decision to serve SSBs to preschoolers is driven by numerous individual, familial, cultural, and environmental factors. Salient factors associated with serving SSBs included convenience, cost, taste, potential health consequences, availability, and pressure from other parents. Population-specific interventions aimed at reducing SSB intake among non-Hispanic preschoolers are discussed.

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HEALTH PROFESSIONALS AND policy makers have become increasingly concerned about dramatic increases in sugar-sweetened beverage (SSB) consumption among U.S. children (Robert Wood Johnson Foundation, 2009; United States Department of Agriculture, 2010). According to the Centers for Disease Control (CDC), SSBs are defined as beverages to which caloric sweeteners, most commonly sucrose and high fructose corn syrup, have been added (CDC,

2010). SSBs include soft drinks, fruit drinks, punches, “-ade” drinks, sports drinks, sweetened coffee, sweetened tea, energy drinks, and sweetened milk drinks (CDC, 2010).

SSBs are currently a leading source of energy intake from added sugars among 2-18 year-old children in the U.S. (Reedy & Krebs-Smith, 2010; United States Department of Agriculture, 2010). National data estimates that 70% of boys and 60% of girls between 2-19 years consume SSBs on any given day (Ogden, Kit, Carroll, & Park, 2011). Energy consumed from SSB intake among youth increases with age. During the period 2005-2006, the mean daily intake in kilocalories from SSBs among 2-6 year-olds, 7-12 year-olds and 13-18 year-olds was 87, 140, and 242 respectively (Popkin, 2010). Among youth ages 2-19 years, non-Hispanic blacks consumed the highest percentage of total dietary calories from SSBs when compared to non-Hispanic white and Mexican-American youth (Ogden et al., 2011). Children ages 2-19 years in low-income households consume a higher mean percentage of daily kilocalories from SSBs than youth living in higher-income households (Ogden

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et al., 2011). In fact, evidence indicates that low-income households spend a higher percentage of home beverage dollars on SSBs compared to higher income households (French, Wall, & Mitchell, 2010).

High intake of SSBs has been linked to increased weight status among children and is a contributing factor to the current childhood obesity epidemic (Malik, Schulze, & Hu, 2006; Vartanian, Schwartz, & Brownwell, 2007). Evidence indicates that the risk for obesity among children increases by 60% for each additional can or glass of SSB consumed each day (Ludwig, Peterson, & Gortmaker, 2001). It is estimated that prevalence of childhood obesity has more than tripled since 1980 and that nearly 17% of U.S. children aged 2-19 years are currently classified as obese (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010). Overweight and obese children are at higher risk for developing long-term complications including type 2 diabetes, hypertension, cardiovascular disease, respiratory problems and musculoskeletal problems (American Heart Association, 2010; Dietz, 1998; Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007; Sarof & Daniels, 2002). Regular consumption of SSBs has been linked to serious health conditions including insulin resistance-associated metabolic parameters, decreased high-density lipoprotein cholesterol, increased systolic blood pressure, and metabolic syndrome (Bremer, Auinger, & Byrd, 2009). Evidence indicates that SSB intake contributes to type 2 diabetes, hepatic de novo lipogenesis, visceral adiposity, and hyperurecemia (Hu & Malik, 2010; Malik, Popkin, Bray, Despres, & Hu, 2010). Other health conditions that have been linked to consumption of SSBs include kidney disease, possible osteoporosis and fractures, poor diet quality, and dental caries (American Academy of Pediatrics, 2006; Dubois, Farmer, & Girard, 2007; Lim et al., 2009; Ogden et al., 2011; Sohn, Burt, & Sowers, 2006; Vartanian et al., 2007; Warren et al., 2009).

More than 60% of soft drinks contain caffeine which can negatively impact the health of children (Keast & Riddell, 2007; Temple, 2009). Twelve ounce servings of Pepsi, Coca-Cola, and Mountain Dew contain 38.9, 33.9, and 54.8 mg of caffeine respectively (Chou & Bell, 2007). A 16 oz energy drink, such as Full Throttle, can contain as much as 200 mg of caffeine (Center for Science in the Public Interest, 2012). Children who consume more than 50 mg of caffeine each day are at increased risk for experiencing caffeine withdrawal symptoms (Temple). Caffeine doses between 100 mg and 400 mg have been associated with nervousness and jitteriness among youth (Temple). Caffeine consumption can also contribute to disrupted sleep patterns, depression, and dependence in children (Calamaro, Yang, Ratcliffe, & Chasens, 2012; Luebke & Bell, 2009; Temple). Consumption of energy drinks, which contain high levels of caffeine, has been associated with seizures, liver damage, kidney failure, hypertension, and sudden death among youth (Seifert, Schaechter, Hershorin, & Lipshultz, 2011).

Low-income and non-Hispanic black individuals are at higher risk for developing several SSB-related health problems (African American Collaborative Obesity Research Network, 2011). The risk for overweight, obesity and untreated dental caries increases among non-Hispanic black children and children residing in households with incomes below poverty level (Anderson & Whitaker, 2009; Bethell, Simpson, Stumbo, Carle, & Gombojav, 2010; Dye, Li, & Beltran-Aguilar, 2012; Flegal, Carroll, Ogden, & Curtin, 2010; Ogden et al., 2010; Singh, Kogan, Van Dyck, & Siahpush, 2008). Compared to their non-Hispanic white counterparts, non-Hispanic black individuals are at higher risk for diabetes, cardiovascular disease, and heart fatalities (African American Collaborative Obesity Research Network, 2011; American Heart Association, 2012; Anderson & Whitaker, 2009; Flegal et al., 2010; Office of Minority Health, U.S. Department of Health and Human Services, 2012; Ogden et al., 2010).

Factors associated with increased SSB intake among youth include home and school availability (Grimm, Harnack, & Story, 2004; Nickelson, Roseman, & Forthofer, 2010; Ogden et al., 2011; van der Horst et al., 2007), lower relative cost (Bevan & Reilly, 2011; Thompson et al., 2003), eating meals at fast food venues and restaurants (Bowman, Gortmaker, Ebbeling, Pereira, & Ludwig, 2004; Pieper & Whaley, 2011; Woodruff, Hanning, & McGoldrick, 2010), parental consumption of SSBs (Campbell et al., 2007; Grimm et al., 2004; McClain, Chappius, Nguyen-Rodriguez, Yaroch, & Sprujit-Metz, 2009; van der Horst et al., 2007; Vereecken, Keukelier, & Maes, 2004; Woodward et al., 1996), preference for taste, peer intake (Grimm et al., 2004; McClain et al. 2009; van der Horst et al., 2007; Woodward et al., 1996), increased television viewing (Grimm et al., 2004; Miller, Taveras, Rifas-Shiman, & Gillman, 2008; van der Horst et al., 2007), and media exposure (Hitchings & Moynihan, 1998). Ethnicity has been implicated as a facilitator of SSB intake. Balian (2009) reported that minority school-aged children were more likely than their white counterparts to perceive that friends and family members approved of daily soft drink consumption.

Decreased SSB consumption among children has been associated with healthy eating behaviors such as fruit and vegetable intake (Pieper & Whaley, 2011; Vereecken et al., 2004), milk consumption (Keller, Kirzner, Pietrobelli, St-Onge, & Faith, 2009) and liking water (McClain et al., 2009; Woodruff et al., 2010), purchasing of meal items at a grocery store, preparation of meals by family members (Woodruff et al., 2010), eating meals with family (McClain et al. 2009, Woodruff et al., 2010), and increased consumer price index (Wilcox, 2009). Numerous parent-related factors have been associated with reduced SSB intake among youth including moderate and restrictive parenting practices (de Brujin, Kremers, de Vries, van Mechelen, & Brug, 2007; Gubbels et al., 2009; Nickelson et al., 2010), higher maternal education and restraining from negative modeling (Vereecken et al., 2004).

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