



Using the Theory of Planned Behavior to Understand Caregivers' Intention to Serve Sugar-Sweetened Beverages to Non-Hispanic Black Preschoolers^{1,2}

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The purpose of this correlational study was to determine the ability the Theory of Planned Behavior (TPB) to explain caregivers' intention to serve sugar-sweetened beverages to non-Hispanic black preschoolers. A sample of 165 caregivers of non-Hispanic black children preschoolers completed a written questionnaire. Multiple regression with path analysis confirmed the relationships of attitude and subjective norm, but not perceived behavioral control (PBC), with intention. After removing PBC, the model accounted for 45.1% of variance in intention. Nurses and other health care professionals can use these findings to tailor behaviorally-based obesity prevention programs at the individual, family, and community-based levels.

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AS A RESULT of the childhood obesity epidemic, children are increasingly developing adult diseases. Obese children are at high risk for developing serious co-morbidities including type 2 diabetes, metabolic syndrome, cardiovascular problems, adult obesity, sleep apnea, respiratory problems and musculoskeletal problems (American Heart Association [AHA], 2011; Dietz, 1998; Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007; Sarof & Daniels, 2002). The prevalence of childhood obesity has more than tripled since 1980 with approximately 17% of U.S. children aged 2–19 years currently classified as

obese (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010; Ogden, Carroll, Kit, & Flegal, 2014; Skinner & Skelton, 2014). The rate of obesity more than doubles after the preschool years from 8.4% among 2–5-year-olds to 17.7% among 6–11-year-olds (Ogden et al., 2014). Non-Hispanic black children and children residing in households at or below poverty level are at increased risk for developing overweight and obesity (Bethell, Simpson, Stumbo, Carle, & Gombojav, 2010; Ogden et al., 2014; Singh, Kogan, Van Dyck, & Siahpush, 2008).

Sugar-Sweetened Beverages

Sugar-sweetened beverage (SSB) consumption is a contributing factor to increased weight status among children and adolescents (Malik, Pan, Willett, & Hu, 2013; Malik,

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Schulze, & Hu, 2006; Vartanian, Schwartz, & Brownwell, 2007). The Centers for Disease Control and Prevention (CDC) defines SSBs as beverages to which caloric sweeteners have been added (CDC, 2010). Examples of SSBs include soft drinks, sports drinks, energy drinks, fruit drinks, sweetened milk drinks, punches, sweetened tea, sweetened coffee, and “-ade” drinks (CDC, 2010). For each additional glass or can of SSBs consumed each day, the risk for obesity among children increases by 60% (Ludwig, Peterson, & Gortmaker, 2001). Consumption of SSBs is linked to numerous other health problems including hepatic de novo lipogenesis, type 2 diabetes, hyperuricemia, and visceral adiposity (Hu & Malik, 2010; Malik, Popkin, Bray, Despres, & Hu, 2010). Regular SSB intake may increase the risk for developing insulin resistance-associated metabolic parameters, decreased high-density lipoprotein cholesterol, increased systolic blood pressure, and metabolic syndrome (Bremer, Auinger, & Byrd, 2009). Low-income and non-Hispanic black individuals are at disproportionately high risk for developing several SSB-related health problems, including overweight, obesity, diabetes, cardiovascular disease, and untreated dental caries (African American Collaborative Obesity Research Network [AACORN], 2011; AHA, 2012; Anderson & Whitaker, 2009; Bethell et al., 2010; Dye, Li, & Beltran-Aguilar, 2012; Office of Minority Health, 2012; Singh et al., 2008).

Energy intake from SSBs among children ages 2-18 years rose from 87 kcal/day during 1977–1978 to 154 kcal/day during 2005–2006 (Popkin, 2010). An estimated 61.3% to 70% of 2–5-year-olds consume at least one SSB within a 24-hour period and daily consumption of SSBs steadily increases as children get older (Popkin, 2010; Wang, Bleich, & Gortmaker, 2008; Wang & Vine, 2013). Evidence suggests that non-Hispanic black children tend to consume more SSBs, particularly non-juice fruit drinks (i.e. Kool-aid, lemonade, Sunny Delight) than their non-Hispanic white and Hispanic counterparts (Han & Powell, 2013; Ogden, Kit, Carroll, & Park, 2011; Reedy & Krebs-Smith, 2010; Storey, Forshee, & Anderson, 2006; Taveras, Gillman, Kleinman, Rich-Edwards, & Rifas-Shiman, 2010). Furthermore, SSB intake tends to be greater among low-income families (Pinard, Davy, & Estabrooks, 2011).

Reduction in SSB intake among children, particularly non-Hispanic black children, can decrease the risk of developing childhood obesity and other health conditions. High rates of SSB consumption coupled with soaring rates of obesity after the preschool years underscore the need to understand the psychosocial factors that drive dietary behaviors of non-Hispanic blacks during early childhood. Citing disparities in SSB intake and SSB-related health consequences among non-Hispanic blacks, AACORN (2011) advocated for research that targets individual behavioral determinants of SSB purchasing and consumption. Little is known about the relationship between psychosocial factors and caregivers' practices surrounding serving SSBs to non-Hispanic black preschoolers. The purposes of this study were (a) to determine caregivers'

intention to serve SSBs to non-Hispanic black preschool-age children, and (b) to determine the relationships between caregivers' attitude, beliefs, subjective norm, and perceived behavioral control (PBC) to caregivers' intent to serve SSBs to non-Hispanic black preschoolers using the Theory of Planned Behavior (TPB) as the guiding framework. Research supports the utility of the TPB in predicting SSB intention and intake among adolescents and school-age children (Balian, 2009; Kassem & Lee, 2004; Kassem, Lee, Modeste, & Johnston, 2003). However, no published research has used the TPB to understand SSB behaviors or intention among preschoolers, non-Hispanic black children, or their caregivers.

Theoretical Framework

The TPB evolved from the Theory of Reasoned Action (TRA) which was originally developed in 1975 (Ajzen, 1991). According to the TRA, an individual's intention to perform a behavior is assumed to be the central determinant that the behavior will be performed. Behavioral intent is directly determined by attitude and subjective norm. Attitude towards a particular behavior can be either positive or negative. More favorable attitudes towards a behavior should increase behavioral intent. Subjective norm “refers to the social pressure to perform or not perform the behavior” (Ajzen, 1991, p. 188). Ajzen pointed out that the TRA failed to address behaviors over which individuals do not have complete volitional control, or the ability to willfully choose whether or not to engage in the identified behavior. The TRA was expanded to include the construct of perceived behavioral control (PBC) based upon the premise that an individual's degree of confidence in one's own ability to engage in a behavior is a strong determinant of the behavioral intention (Ajzen, 2002).

Figure 1 illustrates the direct and indirect relationships proposed by the TPB. Behavior is a function of intention and PBC. Intention is determined by attitude, subjective norm and PBC, which in turn are determined by salient beliefs, or beliefs related to a behavior (Ajzen, 1991). Ajzen identified three categories of salient beliefs: behavioral beliefs; normative beliefs; and control beliefs. Attitude is determined by behavioral beliefs (subjective beliefs about attributes and expected outcomes associated with a behavior) and outcome evaluation related to the behavior. Subjective norm is shaped by normative beliefs and the individual's motivation to comply with normative beliefs. According to the TPB, normative beliefs reflect the perception of beliefs held by peer groups or “referent individuals” related to the performance of a behavior (Ajzen, 1991). Control beliefs and perceived power are determinants of PBC. Control beliefs are the subjective beliefs about existing factors that can either assist or hinder the performance of the behavior of interest. Perceived power is the individual's expectation concerning the potential of resources and obstacles to facilitate or prevent the performance of the behavior (Ajzen, 1991).

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