

MOTIVATORS OF AND BARRIERS TO HEALTHY EATING BEHAVIORS:
PERSPECTIVES OF LOW-INCOME, CULTURALLY DIVERSE CHILDREN

By

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To my Mother

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Abstract of Thesis Presented to the Graduate School
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This study used a focus group methodology to examine the perceived motivators of and barriers to healthy eating behaviors among African American, Hispanic, and non-Hispanic White American children from families with low household incomes. The present study also examined if there were differences in perceived motivators of and barriers to healthy eating behaviors in association with gender and race/ethnicity. Specifically, the healthy eating behaviors assessed in this study include: (a) eating foods and snacks that are lower in fat and calories and (b) eating fruits, vegetables, and whole grains.

Participants were 37 children between the ages of 9 and 12 years old who were from families with an annual household income of 40,000 dollars or less. These children participated in one of six gender- and race/ethnicity- concordant focus groups that were conducted at various community sites and led by trained focus group leaders of the same gender and race/ethnicity as the focus group's participants. Digital audio recordings of the focus groups were transcribed and then analyzed qualitatively by a team of culturally diverse researchers using the constant comparative method. An inductive strategy was used to develop a coding scheme to describe and categorize the reported motivators and barriers. Inter-coder reliability was found to be 0.89.

Overall, findings suggest a number of environmental, educational, sociocultural, and psychological factors that children reported as motivating or preventing them from engaging in healthy eating behaviors. The motivators of healthy eating most commonly reported across focus groups included: (a) social influence, (b) taste, (c) availability of healthy foods, (d) weight concerns, and (e) the desire to be healthy. The barriers to healthy eating most commonly reported across focus groups included: (a) taste and (b) issues of availability. A number of other motivators of and barriers to healthy eating were also reported.

Findings from the present study suggest that the perceived motivators of and barriers to healthy eating behaviors are generally similar across gender and race/ethnicity. The few potential gender and race/ethnicity differences that were found are reported. For example, in regard to gender differences, it was found that two of three female focus groups but none of the male focus groups reported that the immediate effects that accompany eating certain foods (e.g., feeling energetic) serve as a motivator for eating healthy foods. An example of a finding related to possible race/ethnicity differences is that the African American male focus group was the only group among which weight concerns was not discussed as a motivator for eating healthy foods.

The limitations, implications, and conclusions of this study are presented. Future research may utilize the present study as a model for conducting similar studies that are culturally sensitive in nature and inclusive of children from low-income families as well as children of diverse cultural backgrounds. The present study can also inform the development of a quantitative assessment tool that can be used with diverse groups of children to determine their perceived motivators of and barriers to healthy eating, with the ultimate goal of using this assessment data to inform interventions aimed at reducing obesity and health disparities and promoting healthy eating behaviors among children.

CHAPTER 1 INTRODUCTION

Over the past three decades, the childhood obesity rate in the United States has more than tripled. One third of American children and youth are either obese or at risk for becoming obese (Institute of Medicine, 2006). Although the United States Department of Health and Human Services identified overweight and obesity as one of the top 10 leading health indicators years ago in the national initiative titled *Healthy People 2010*, progress reviews have indicated that trends for obesity and overweight have only worsened, especially among children and adolescents (Trust for America's Health, 2007; United States Department of Health and Human Services [USDHHS], 2007). The prevalence of overweight in female children and adolescents increased from 13.8% in 1999-2000 to 16.0% in 2003-2004, and the prevalence of overweight in male children and adolescents increased from 14.0% to 18.2% (Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2006). Overweight has recently been considered to be a pandemic among children as well as adults (Baur & Denney-Wilson, 2003; Larson & Story, 2007).

Because of the long list of potential physical, psychological, emotional, and social consequences of obesity in children and youth, effective interventions to address childhood overweight and obesity are particularly needed. These potential consequences include: type 2 diabetes or glucose intolerance/insulin resistance, hypertension, dyslipidemia [disruption in the amount of lipids in the blood], hepatic steatosis [fatty liver disease], sleep apnea, menstrual abnormalities, impaired balance, orthopedic problems, low self-esteem, negative body image, depression, social stigmatization, discrimination, and teasing/bullying (Institute of Medicine, 2004).

Interventions to prevent/modify childhood obesity are especially needed also because youth who are overweight or obese in childhood tend to remain overweight or obese in

adulthood, and because early childhood overweight that persists into adulthood is associated with more severe obesity in adulthood (Freedman, Scrivivasan, Valdez, Williamson, & Berenson, 1997; Dietz, 2004; USDHHS, 2007). In the long run, obesity in childhood may even reduce overall life expectancy, because it increases lifetime risk for type 2 diabetes and other serious disease conditions, such as cancer, cardiovascular disease, and metabolic syndrome (Institute of Medicine, 2004).

It is also noteworthy that in recent years, overweight and obesity among children and adults have been added to the list of health disparities that plague our nation, with racial/ethnic minorities and low-income populations being disproportionately affected (Strauss & Pollack, 2001; Dietz, 2004; Wang & Brownell, 2004; Delva, O'Malley, & Johnston, 2006). Specifically, in regard to youth, it has been found that Hispanic and non-Hispanic Black children and adolescents typically experience higher rates of overweight and obesity than non-Hispanic White children and adolescents (Hedley, Ogden, Johnson, Carroll, Curtin, & Flegal, 2004; Delva et al., 2006; Ogden et al., 2006). Additionally, overweight prevalence is disproportionately higher among children who are from families with low incomes and among children whose parents have attained fewer years of education (Haas, Lee, Kaplan, Sonneborn, Phillips, & Liang, 2003).

It is likely that such health disparities are partially due to lower engagement in health promoting behaviors among youth and adults in racial/ethnic minority and low-income families. Support for this view comes from research findings such as the finding that fruit and vegetable consumption is lower among low-income and racial/ethnic minority populations (Beech, Rice, Myers, Johnson, & Nicklas, 1999; Feldman et al., 2000) and from the finding that Mexican Americans eat more meat and saturated fats and fewer low-fat dietary products than White Americans (Warrix, 2005). Furthermore, in a 17-year longitudinal study by Delva and colleagues

(2006), the following findings were reported: (a) Black and Hispanic students reported eating breakfast less frequently than did White students, (b) low socioeconomic status (SES) students reported eating breakfast less frequently than did high SES students, (c) a lower percentage of Black female students and Hispanic female students reported engaging in frequent vigorous exercise as compared to White female students, (d) a lower percentage of low SES students and mid SES students reported engaging in frequent vigorous exercise as compared to high SES students, (e) Black students and Hispanic students reported higher weekday television viewing hours than did White students, and (f) low SES students reported higher weekday television viewing hours than did high SES students. Such findings suggest that there is a critical need for effective interventions to increase health promoting behaviors among low-income and racial/ethnic minority families. Thus, it is not surprising that national agencies are calling for interventions to promote healthy behaviors among all Americans, but especially among low-income and racial/ethnic minority children and adolescents (USDHHS, 2000).

It is particularly noteworthy that dietary behaviors have been found to be linked to four of the top ten leading causes of death – coronary heart disease, some types of cancer, stroke, and type 2 diabetes (Kochanek, Murphy, Anderson, & Scott, 2004; USDHHS & U.S. Department of Agriculture [USDA], 2005). The underlying pathology that leads to some of these diseases begins during childhood and adolescence (Newman et al., 1986). However, many risk factors for these types of diseases, such as the risk factor of not eating recommended amounts of fruits and vegetables, are dietary behaviors that are modifiable. It is thus important to focus on these risk factors, especially in younger populations whose nutrition behavior patterns – whether healthy or unhealthy – tend to continue from childhood to adolescence and into adulthood (Kelder, Perry, Klepp, & Lytle, 1994).

In a recent study of 232 6th graders and 607 9th graders, Omar and Rager (2005) found that the diets of 37% of the 9th graders and 59% of the 6th graders were inadequately nutritious. Additionally, 47% of the 9th graders and 33% of the 6th graders had Body Mass Indexes over the 85th percentile for their age. Such data are a cause for pessimism with regard to alleviating the obesity epidemic.

Clear evidence has emerged indicating that a healthy diet and regular physical activity during childhood and adolescence promote normal growth and development among children and adolescents (USDHHS, 2000). Accordingly, Baranowski and colleagues (2000) suggested that the goals of health promotion interventions should include increasing engagement in physical activity and healthy eating (Baranowski, T., Mendlein, Resnicow, Frank, Cullen, & Baranowski, J., 2000). Unfortunately, it appears that many children and adolescents in the U.S. do not eat a healthy diet or engage in appropriate levels of physical exercise (Pate, Long, & Heath, 1994; Sallis, Patrick, Frank, Pratt, Wechsler, & Galuska, 2000).

In response to the inadequate engagement in healthy eating and physical exercise among youth in the U.S., public health authorities have focused nine national health objectives from *Healthy People 2010* on dietary behaviors among youth and eight national health objectives on physical activity behaviors among youth (USDHHS, 2000). Some of the objectives related to dietary behaviors, nutrition, and/or overweight in youth include: (a) reducing the proportion of children and adolescents who are overweight or obese (Objective 19-03), and (b) increasing the proportion of persons aged 2 years and older who engage in several health promoting behaviors. Regarding the latter, the *Healthy People 2010* objectives include increasing the proportion of persons aged 2 years and older who do the following: (a) consume at least two daily servings of fruit and three daily servings of vegetables (Objectives 19-05 and 19-06, respectively), (b)

consume at least six daily servings of grain products, with at least three being whole grain (Objective 19-07), (c) consume less than 10% of calories from saturated fat (Objective 19-08), (d) consume no more than 30% of daily calories from fat (Objective 19-09), (e) consume 2,400 mg or less of sodium daily (Objective 19-10), (f) meet dietary recommendations for calcium (Objective 19-11), and (g) eat meals and snacks at school that contribute to good overall dietary quality (Objective 19-15) (USDHHS, 2000).

Interventions targeting these healthy eating behaviors in children are especially needed, given the evidence that normal weight children report significantly higher health-related quality of life than do obese children (Schwimmer, Burwinkle, & Varni, 2003). Interventions aimed at increasing healthy eating behaviors among children have sought to increase fruit and vegetable intake (Baranowski et al., 2000; Cassady, Vogt, Oto-Kent, Mosley, & Lincoln, 2006), decrease fat and caloric intake (Raizman, Montgomery, Osganian, & Ebzery, 1994; Osganian, Hoelscher, Zive, Mitchell, Snyder, & Webber, 2003; Van Horn, Obarzanek, Friedman, Gernhofer, & Barton, 2005), decrease sugar intake (Fragala-Pinkham, Bradford, & Haley, 2006), and increase the frequency of eating a healthy breakfast (Dwyer, Hewes, Mitchell, & Nicklas, 1996). Despite the growing recognition that health promotion interventions should seek to increase healthy eating and physical activity and decrease sedentary behavior, few interventions attempting to target these behaviors in children have demonstrated a sustained impact on healthy eating and physical activity (Mendlein, Baranowski, & Pratt, 2000). As a result, there have been numerous calls for research to identify the reasons children do or do not engage in health promoting levels of healthy eating and physical activity, as the findings from such research will help inform health promotion interventions for these youth (Cusatis & Shannon, 1996; Neumark-Sztainer, Story, Perry, & Casey, 1999).

One of the conclusions of the investigators at the Centers for Disease Control and Prevention's Physical Activity and Nutrition in Children Program is that successful interventions must include "innovative approaches based on sound behavioral principals and an understanding of why children engage in these behaviors..." (Mendlein et al., 2000, p. S151). Few studies have examined the motivators of and barriers to engagement in health promoting behaviors among children. Identification of children's motivators and barriers to increase healthy eating and physical activity and decrease sedentary behavior is especially important given the strong links between these behaviors and health indices (Sallis & Patrick, 1994) and given that knowledge of these motivators and barriers can inform the development of effective health promotion interventions and assessment tools.

It is important that research conducted to identify the motivators of and barriers to health promoting behaviors (e.g., healthy eating) among children includes racial/ethnic minority groups and takes cultural factors into account. Support for this view comes from the conclusion of Dietz (2004) that the increased rate of weight gain among African American and Mexican American children and adolescents can be accounted for by person-environment interactions that are likely to vary according to racial/ethnic background. Specifically, some studies with Hispanic persons have suggested that cultural influences, such as believing illness is caused by wrongdoing, bad luck or sin (Da Silva, 1984), eating as a family activity, eating large portions, and perceiving a large body as an indicator of success (Chatterjee, Blakely, & Barton, 2005), are among the factors that contribute to obesity-related behaviors.

There are also cultural norms or influences related to obesity and health behaviors that appear to be unique to African Americans. These culture-specific norms/influences include (a) having a different conceptualization of what is "overweight" or "being too fat" than the

perceptions held by healthcare professionals, the majority of non-Hispanic White Americans, and other ethnic groups; and (b) honoring and adhering to cultural traditions (e.g., eating ethnic “soul” foods that are high in fat and/or sodium, and associating beauty with large body sizes) that are antagonistic to weight-loss recommendations made by providers (Kumanyika, Morssink, & Agurs, 1992). Similarly, in Project EAT, which examined the weight-related concerns of an ethnically diverse sample of 4,796 adolescent males and females, findings included the following: (a) African American girls reported fewer weight concerns than non-Hispanic White girls; (b) Hispanic, Asian American, and Native American girls reported similar or more weight-related concerns/behaviors when compared to non-Hispanic White American girls; and (c) body satisfaction was highest among African American girls, even though they had the highest prevalence of obesity (Neumark-Sztainer et al., 2002). Thus, it is crucial to consider culture when examining factors that influence the health promoting behaviors of culturally diverse groups. Dietz (2004) further posited that effective prevention of unhealthy weight gain and associated health problems among racially/ethnically diverse youth may require intervention strategies that are specific to each racial/ethnic group.

The purpose of the present study is to use focus groups to identify perceived motivators of and barriers to engagement in healthy eating behaviors among African American, Hispanic, and non-Hispanic White American low-income children (ages 9 to 12). The specific healthy eating behaviors that are the focus of this research include (a) eating healthy food and snacks that are lower in fat and calories and (b) eating fruits, vegetables, and whole grains.

CHAPTER 2 LITERATURE REVIEW

Rationale for the National Advocacy for Healthy Eating among Children

Clear evidence has emerged indicating that a healthy diet and regular physical activity during childhood promotes normal growth and development (United States Department of Health and Human Services [USDHHS], 2000). Furthermore, levels of engagement in physical activity and nutrition-related behaviors impact several physiological factors that can place children at risk for developing chronic diseases. These factors include body composition (e.g., adiposity), blood lipid concentrations, blood pressure, and bone mineral density (Sallis & Patrick, 1994).

To take steps toward increasing the overall health of children, adolescents, and adults, the U.S. Department of Health and Human Services created the *Healthy People 2010* national health promotion and disease prevention initiative. Central to this initiative was advocacy for examining the health status of all Americans and increasing health promoting behaviors and decreasing health risk behaviors. In response to the need to improve nutrition and prevent obesity among children, the public health authorities who crafted *Healthy People 2010* focused nine of its health objectives for the nation specifically on dietary behaviors among youth (USDHHS, 2000).

Promoting healthy eating is important among children, particularly low-income and racial/ethnic minority children, because (a) research has shown that many children, especially low-income and minority children, do not have a healthy diet or consume recommended amounts of healthy foods, (b) healthy eating helps prevent diet-related diseases/health problems and thus can reduce health disparities, and (c) healthy eating promotes healthy physical and psychological development of children.

Current Trends in Eating Behaviors among Children

Unfortunately, it appears that many children in the U.S. do not engage in healthy eating behaviors (Pate, Long, & Heath, 1994; Sallis et al., 2000). For instance, a study of 232 sixth graders (mostly 12 year-olds) found that the diets of 59% of the students from this study were inadequately nutritious and that 33% of the students from this study had Body Mass Indexes (BMIs) over the 85th percentile for their age (Omar & Rager, 2005). In fact, the U.S. Department of Agriculture (1998) has reported that 67% of U.S. youth ages 6 to 19 exceed dietary guidelines recommendations for fat intake, and 72% exceed recommendations for saturated fat intake. This is likely due in part to an increased frequency of children dining at fast food establishments. Fast food consumption has increased fivefold among children since 1970 (Guthrie, Lin, & Frazao, 2002). In fact, nearly one third of U.S. children and adolescents eat fast food every day, resulting in an impact of approximately six extra pounds per year, per youth (Bowman, Gortmaker, Ebbeling, Periera, & Ludwig, 2004). Additionally, children's frequency of eating at fast food restaurants is associated with increased consumption of cheeseburgers, pizza, French fries, soft drinks, and total fat and calories, as well as decreased consumption of vegetables, fruit, and milk (French, Story, Neumark-Sztainer, Fulkerson, & Hannan, 2001).

Decreasing consumption of fruits, vegetables, and milk is an important factor in the inability of American youth to meet recommended dietary standards. The *Dietary Guidelines for Americans* includes choosing a variety of fruits and vegetables daily as well as a variety of grains daily, especially whole grains (USDA & USDHHS, 2000). Specifically, two to four daily servings of fruit are recommended (USDHHS, 2004). However, progress reviews have shown that the age-adjusted average number of daily servings of fruit consumed by individuals two years of age and older is only 1.5 servings. Vegetable consumption is also below the recommended amount, with American youth averaging 3.4 servings of vegetables daily.

Although this falls within the daily recommended range of three to five servings, only 8% of vegetable servings consumed by children and adolescents ages 2 to 19 were dark green or orange vegetables, whereas 46% of consumed vegetable servings were fried potatoes. This is a far reach from the recommendation that dark green or orange vegetables, which are high in vitamin content, constitute at least one third of total vegetable consumption (USDHHS, 2004).

Similarly to the USDHHS' evidence regarding low vegetable consumption, a recent study by Zapata and colleagues (2008) that included students from 73 public middle schools across the state of Florida found that only 26% of sixth-grade students reported consuming five or more fruits and vegetables a day (including fruit juice), and this percentage of recommended fruit and vegetable consumption decreased with increasing grade level. Additionally, when asked to identify the number of daily servings of fruits and vegetables recommended by experts, less than 20% of the students correctly identified the consumption of five or more servings per day. Another 20% of students answered that they were not sure about the number of recommended servings, and 61% of students underestimated the recommended number of servings of fruits and vegetables per day (Zapata, Bryant, McDermott, & Hefelfinger, 2008).

Additionally, the *Dietary Guidelines for Americans* includes the recommendation that Americans consume at least three servings of whole-grain foods per day (USDHHS & USDA, 2005); however, national dietary intake data shows that children and adolescents typically consume less than one serving of whole grains per day (Harnack, Walters, & Jacobs, 2003). It is important to note that whole grains, as well as legumes, fruits, and vegetables, are critical sources of dietary fiber. Unfortunately, only 39% of children ages 2 to 17 meet the USDA's dietary recommendation for fiber consumption (Lin, Guthrie, & Frazao, 2001).

Despite low engagement in healthy eating among the general population of children, research has shown that engagement in healthy eating behaviors, such as eating recommended amounts of fruits and vegetables, is even lower among low-income and racial/ethnic minority populations (Beech, Rice, Myers, Johnson, & Nicklas, 1999; Feldman et al., 2000). For instance, findings from a large study conducted by Delva and colleagues (2006) showed that a greater percentage of non-minority youth reported eating breakfast frequently, as compared with minority youth. This study also found differences across socioeconomic status (SES), with a greater percentage of high SES youth reporting eating breakfast frequently as compared to low SES youth. Specifically, 64% of high SES males versus 41% of low SES males reported eating breakfast frequently, and 51% of high SES females versus 25% of low SES females reported eating breakfast frequently (Delva et al., 2006). Clearly, there is a crucial need to better understand as well as promote healthy eating among children in order to prevent both obesity and other diet-related health problems and the negative consequences that come along with these conditions.

Diet-Related Diseases/Health Problems

Dietary factors are linked with several of the top 10 leading causes of death, including coronary heart disease, stroke, type 2 diabetes, and some types of cancer (USDHHS, 2000; National Institutes of Diabetes and Digestive and Kidney Diseases, 2004; Centers for Disease Control and Prevention [CDC], 2005; USDHHS, 2005; Trust for America's Health, 2007). Overweight/obesity, one of the most prominent current health concerns in the United States, generally occurs in children as a result of unhealthy eating patterns, lack of physical activity, or a combination of both factors (USDHHS, n.d.). Obesity rates among children ages 6 to 11 have doubled during the past two decades, changing from 6.5% in 1980 to 17.0% in 2006 (Ogden, Carroll, & Flegal, 2008). The well-established trend of increased longevity of life now has the

potential to reverse by the end of the century, with children no longer outliving their parents (Ehrmann, 2007).

National concerns over obesity are related to its association with the occurrence of chronic diseases such as diabetes, arthritis, hypertension, and cardiovascular diseases (Kahn, Dunkle, & Jackson, 2004; Wray, Blaum, Ofstedal, & Herzog, 2004). Many of the chronic diseases associated with obesity (e.g., high cholesterol, hypertension, type 2 diabetes) were previously considered adult diseases; yet, they are now being diagnosed in children (Salinsky & Scott, 2003). In fact, annual childhood obesity-related hospital costs have increased threefold over the past 20 years, and in 2003 these costs totaled \$127 million (Wang & Dietz, 2002).

Poor eating patterns (that often result in obesity), along with genetics, contribute to high blood cholesterol levels, increased risk of coronary heart disease, and fatty buildups in the arteries that can begin as early as childhood (American Heart Association [AHA], 2008). A study by Koplan and colleagues (2004) found that 60% of obese children ages 5 to 10 years who were part of a population-based sample had at least one risk factor for cardiovascular disease, such as elevations in total cholesterol, triglycerides, insulin, or blood pressure.

It is also noteworthy that overweight children have a 70% chance of becoming overweight or obese adults (Center for Rural Pennsylvania, 2005). Furthermore, poor diets among youth are associated with a number of serious health problems, including: glucose intolerance and insulin resistance, hypertension, dyslipidemia, hepatic steatosis, cholelithiasis, sleep apnea, menstrual abnormalities, impaired balance, orthopedic problems, and type 2 diabetes (Koplan et al., 2004; Cullen & Thompson, 2005; Neumark-Sztainer, French, Hannan, Story, & Fulkerson, 2005). The well-known cluster of obesity, hyperglycemia, hyperinsulinemia, dyslipidemia, and hypertension is known as “Syndrome X,” or Insulin Resistance Syndrome and

is now occurring in children (Bao, Srinivasan, Wattigney, & Berenson, 1994; Srinivasan, Meyers, & Berenson, 2002).

The epidemic of type 2 diabetes in the U.S. is largely related to the rapid rise of individuals with obesity (Bray, 1998; Koplan, Liverman, & Kraak, 2004). Obese individuals with type 2 diabetes, a disease once called “adult-onset diabetes,” are at a particularly high risk for death from cardiovascular disease in addition to other diabetes-related complications (Haffner, Lehto, Ronnema, Pyorala, & Laakso, 1998). The incidence of type 2 diabetes in children has increased alarmingly (Fagot-Campagna et al., 2000) and appears to parallel the increase in the prevalence of obesity among children (Troiano, Flegal, Kuczmarski, Campbell, & Johnson, 1995). Recently, it has been proposed that children born in the United States in the year 2000 have an estimated 30-40% chance of developing type 2 diabetes during their lifetime, and that the risk of type 2 diabetes is even higher among racial/ethnic minority groups as compared to majority groups (Koplan et al., 2004).

Psychological impact of overweight/obesity

In addition to potentially hazardous physical comorbidities, obesity also has negative psychological and social effects. Unfortunately, previous research has shown that obese persons are viewed less positively than other stigmatized groups (e.g., less friendly, less likely to succeed) (Staffieri, 1967; Wiener, Perry, & Magnusson, 1988; Wing & Jeffery, 1999). Additionally, obese children are more likely to experience loneliness, sadness, and nervousness (Strauss, 2000), low self-esteem, negative body image, depression, social stigmatization, discrimination, and teasing/bullying (Institute of Medicine, 2004). Strauss (2000) additionally found that obese children are more likely to engage in risk-taking behaviors such as using tobacco and alcohol.

Furthermore, a number of youth have responded to unwanted weight-gain by using unhealthy methods of losing weight. A nationwide survey of adolescents found that during the 30 days preceding the survey, 12.3% of students went without eating for 24 hours or more; 4.5% had vomited or taken laxatives in order to lose weight; and 6.3% had taken diet pills, powders, or liquids without a doctor's advice (Ogden et al., 2006). Such findings have led to psychologists' assuming leading roles in the study of eating disorders among youth (e.g., Klaczynski, Goold, & Mudry, 2004; Ackard, Fulkerson, & Neumark-Sztainer, 2007).

Race/culture-related disparities in diet-related diseases/health problems

It is important to note that low-income and racial/ethnic minority groups are disproportionately affected by overweight/obesity and related health problems. For example, racial/ethnic minority groups as compared to the majority group experience higher rates of cancer, diabetes, heart diseases, and stroke (National Institutes of Health, 2006), as well as higher rates of type 2 diabetes (Diabetes Research Working Group, 2002) and obesity (Clark & Gibson, 1997; Ogden et al., 2006). These health disparities are no longer only apparent among adults; indeed, they are now also apparent among children as well.

Childhood obesity is particularly intransigent among U.S. racial/ethnic minority populations (Dwyer et al., 2000; Goran, 2001). Specifically, Strauss and Pollack (2001) report that the prevalence of overweight and obesity increased by 120% from 1986 to 1998 among African American and Hispanic children and adolescents versus by 50% among non-Hispanic White Americans children and adolescents. Research suggests that among boys, the highest prevalence of childhood obesity occurs in the Hispanic population and that among girls, the highest prevalence of childhood obesity occurs in the African American population (Institute of Medicine, 2004). Furthermore, a large study of over 62,000 school-aged children, conducted through the CDC's National Center for Health Statistics, found that while one third (32.2%) of

non-Hispanic White American children were overweight or obese, one half (49.2%) of African American children and nearly one half (44.0%) of Hispanic children were overweight or obese (Lutfiyya, Garcia, Dankwa, Young, & Lipsky, 2008). Thus, it is clear that although the prevalence of overweight/obesity is high among non-Hispanic White American children, the prevalence of overweight/obesity is even higher among racial/ethnic minority children.

Another recent study determined that 41% of Mexican American adolescents were overweight and 23% were obese (Forrest & Leeds, 2007). Due to the high prevalence of overweight/obesity in this population, there are calls for culturally-appropriate programs including nutrition education to be developed that target this specific group (Forrest & Leeds, 2007). Such programs certainly must begin in childhood in order to prevent adolescent obesity.

Overweight/obesity is not the only diet-related disease/health problem that has a disproportionately high prevalence among racial/ethnic minority children. Type 2 diabetes, for instance, is also more likely to occur among U.S. racial/ethnic minority children (Fagot-Campagna et al., 2000). Specifically, type 2 diabetes has the highest prevalence rates among American Indian, African American, and Hispanic children (CDC, 2004). Interestingly, it has also been found that Hispanic children and African American children are more insulin-resistant than non-Hispanic White American children, and this finding was independent of adiposity (Goran, Bergman, Cruz, & Watanbe, 2002).

It also noteworthy that several large population studies have found higher rates of total cholesterol, LDL cholesterol, and HDL cholesterol (but lower triglycerides) among African American children as compared to non-Hispanic White and Hispanic children (Webber et al., 1995; Morrison, Sprecher, Barton, Waclawiw, & Daniels, 1999). These differences in lipids remained even after controlling for BMI, thus suggesting an intrinsic difference among these

racial/ethnic groups (Goran, Ball, & Cruz, 2003). Even if such differences are found to be intrinsic, preventing risks for high cholesterol and obesity by way of reducing unhealthy eating behaviors should still be a priority among racial/ethnic minority children.

Several studies have also found higher rates of elevated blood pressure among African American school-aged children as compared with non-Hispanic White children and Hispanic children (Winkleby, Robinson, Sundquist, & Kraemer, 1999; Cruz, Huang, Johnson, Grower, & Goran, 2002). However, other studies have not found this difference (e.g., Rosner, Prineas, Daniels, & Loggie, 2000). Such confusion may be the result of a lack of consistent investigation into confounding factors such as age and BMI (Goran et al., 2003).

Income-related disparities in diet-related diseases/health problems

In addition to disparities related to race/ethnicity, interactions between race/ethnicity and socioeconomic status (SES) are important to note. For example, in the previously-referenced study conducted by the CDC (2004), it was found that the association between living in a poorer household with being overweight or obese was strongest among Hispanic children, as comparison to non-Hispanic White children and African American children (Lutfiyya et al., 2008). In some instances, there appear to be differential interactions between race/ethnicity and SES. For example, a study by Gordon-Larsen and colleagues (2003) reported that among non-Hispanic White adolescent girls, the prevalence of overweight decreased with increasing SES; however, among African American adolescent girls, the prevalence of overweight remained the same or increased with increasing SES (Gordon-Larsen, Adair, & Popkin, 2003). Similar results, with the additional inclusion of Hispanic children, were reported by a recent U.S. National Health and Nutrition Examination Survey (Freedman et al., 2007) as well as by a large school-based study conducted in North Florida (Johnson et al., 2007). In both studies, family income was significantly and inversely associated with childhood overweight among non-Hispanic

White American children and among Hispanic American children, but not among African American children.

Health disparities also occur exclusively in relation to SES, with low-income populations being disproportionately affected by diet-related diseases and health problems. For instance, previous research has found that children from low-income families are more likely to be overweight (Jain, Sherman, & Chamberlain, 2001; McArthur, Anguiano, & Gross, 2004; Freedman et al., 2007; Lutfiyya et al., 2008). Obesity rates are also geographically-related to poverty rates in some areas of the United States. For example, 8 of the 10 states with the highest poverty rates are in the South, and obesity rates are also highest in the South. Furthermore, the states with the lowest poverty rates also have the lowest rates of obesity (Trust for America's Health, 2007).

Interestingly, a recent study conducted in Baltimore with homeless children and their caregivers—a population once likely to be underweight—reported that nearly half of the homeless children were either overweight or at risk for becoming overweight (Schwarz, Garrett, Hampsey, & Thompson, 2007). Furthermore, youth who have no insurance or who have public insurance such as Medicaid are more likely to be overweight than youth who have other types of insurance (Haas et al., 2003). Similarly, Lutfiyya and colleagues (2008) reported that overweight or obese children across three different racial/ethnic groups were more likely to have not received preventive care in the past 12 months, an issue likely related to socioeconomic status. Clearly, research on healthy eating behaviors and diet-related health problems among children must take into account the health disparities that exist among low-income populations as well as among racial/ethnic minority groups.

Benefits of Healthy Eating

Clear evidence has emerged indicating that proper nutrition along with regular exercise during childhood promotes normal growth and development among children (USDHHS, 2000). Furthermore, it is generally thought that nutrition and physical activity-related behavior patterns and associated physiological outcomes—whether at healthy or unhealthy levels—continue from childhood to adolescence and into adulthood (Kelder, Perry, Klepp, & Lytle, 1994; Malina, 1996). Thus, the establishment of healthy eating patterns during childhood is especially important, because those patterns are likely to follow a child throughout his/her life. Proper nutrition is important for maintaining a healthy weight. For example, Howarth and colleagues (2001) found that increased consumption of fiber was associated with decreased energy intake and loss of weight over a period of several months (Howarth, Saltzman, & Roberts, 2001).

Healthy eating behaviors can also prevent many diet-related diseases/health problems. The American Heart Association (AHA, 2008) and other public health agencies have emphasized the importance of individuals ages 2 years and older having low intakes of saturated and *trans* fat, cholesterol, and added sugar and salt. The AHA (2008) states that eating at least five servings of fruits and vegetables daily, as well as a wide variety of other foods that are low in saturated fat and cholesterol, will help children to maintain normal blood cholesterol levels and promote cardiovascular health.

Multiple sources have also reported that dietary patterns with higher intakes of vegetables (including legumes), fruits, and grains are associated with a variety of health benefits, including decreased risk for some types of cancer (USDHHS, 1988; National Research Council, 1989; USDHHS, Food and Drug Administration, 1993; Chief Medical Officer's Committee on Medical Aspects of Food, 1993; World Cancer Research Fund, 1997). Additional support for the preventative effects of healthy eating behaviors can be garnered from a review of over 200

human epidemiological studies and 22 animal studies. This major review, conducted by Steinmetz and Potter (1996), supports the common assertions that consumption of fruits and vegetables plays an integral role in the prevention of cancer, cardiovascular disease, cataracts, obesity, and diverticulosis, and that low levels of consumption of fruits and vegetables may increase the risk for cancer.

In addition to preventing diet-related diseases/health problems, eating healthy also has the power to reverse or combat certain health problems, such as obesity and high blood pressure, once they have already occurred (Ogden, Yanovski, Carroll, & Flegal, 2007). The AHA has stated that reducing caloric intake is the simplest change that can be made to prevent or treat overweight in children (AHA, 2008), and pediatric intervention studies have confirmed that a diet low in saturated fat and cholesterol can actually lower elevated cholesterol levels (Obarzanek et al., 2001; Talvia et al., 2004).

Although the exact mechanism of the transition from risk factors (e.g., unhealthy eating) in childhood to diabetes and cardiovascular disease is not clear, compelling evidence points to the association of these childhood risk factors with overt disease in adults. It is reasonable to suggest that lifestyle modification and weight control in childhood can reduce the risk of developing insulin resistance syndrome, type 2 diabetes mellitus, and cardiovascular disease (Steinberger & Daniels, 2003). In fact, atherosclerosis (i.e., hardening of the arteries), a complex disease that may begin in its earliest stages in childhood (Berenson et al., 1998), appears to be reversible with behavioral modification. This is because childhood obesity is independently associated with arterial endothelial dysfunction and carotid wall thickening (Tounian et al., 2001; Woo et al., 2004), which are early markers of arterial damage. Research by Woo and colleagues (2004) has shown that vascular dysfunction associated with obesity in children is partially reversible after

even a short program (i.e., six weeks) of dietary modification, which also resulted in decreased waist-hip ratio and cholesterol. Furthermore, a longer-term (i.e., one year) program that included an individualized exercise training program along with dietary modification resulted in significantly less thickening of the carotid wall, as well as persistent improvements in body fat and lipid profiles (Woo et al., 2004).

Despite the benefits of health promoting behaviors, including increased protection against disease, many American youth simply do not incorporate these behaviors into their daily life (Pate et al., 1994; Sallis et al., 2000), which further supports the magnitude of the public health problem regarding nutrition and diet-related diseases. Clearly, further research regarding the prevention of obesity and other diet-related diseases should focus on increasing engagement in health promoting behaviors, particularly healthy eating behaviors.

Contributors to Healthy/Unhealthy Eating among Children

As to be expected, there are numerous environmental, sociocultural, and personal factors that either motivate or prevent children from engaging in healthy eating behaviors. Perceptions of parents and children regarding healthy eating suggest that the number of barriers to healthy eating likely outweighs the number of motivators (Hart, Herrio, & Truby, 2003). A review of current literature suggests that the most salient factors in the eating behaviors of children include: (a) environmental factors, (b) social relationship factors, (c) cultural factors, (d) economic factors, (e) knowledge/educational factors, and (f) psychosocial factors. Each of these factors is described below.

Environmental Factors

A variety of environmental factors influence the eating behaviors of children. These environmental factors include the following: (a) availability/accessibility of healthy/unhealthy foods, (b) media influence, and (c) school environment.

Availability/accessibility of healthy/unhealthy foods

Availability/accessibility of healthy/unhealthy foods is a prominent environment-related factor in the eating behaviors of children. Availability of healthy food and snack options has been cited by youth as a motivator to eating healthy, and availability of unhealthy food and snack options has been cited as a barrier to eating healthy (Sheppard et al., 2006). Other studies have also found an association between availability of healthy foods and children's consumption of these foods (Cullen, Baranowski, Rittenberry, et al., 2001; Cullen, Baranowski, Owens, et al., 2003). Convenience (e.g., healthy foods being not only available but also easily accessible) is a related factor that guides families' food choices (Glanz et al., 1998). For instance, the availability of fruits and vegetables that have already been prepared, pre-cut, or placed in plain-view on the kitchen counter has been shown to increase children's consumption of these foods (Baranowski T., Cullen, & Baranowski J., 1999). Availability/accessibility-related barriers to healthy eating that have been reported among children include the absence of fruits and vegetables on fast food menus (Rees, 1992).

Media influence

The media appears to play a significant role in determining children's perceptions of what constitutes healthy eating (Signorielli & Lears, 1992; Signorielli & Staples, 1997; Stevenson et al., 2007). Children themselves have identified the media and advertising as barriers to healthy eating, suggesting the profound degree of influence that the media has on their food preferences. Research suggests that the media is sending contradictory messages to youth; on one hand, they report feeling influenced by the media to eat unhealthy fast food products, but on the other hand, they report feeling influenced by models and celebrities to be thin (Stevenson et al., 2007). Children also report that they are tempted by the packaging on junk foods and have even expressed the need for more advertisements that highlight healthy foods and their health benefits

(Hesketh, Waters, Green, Salmon & Williams, 2005). There is also non-self-report research to further support that the media does, in fact, have a significant influence on our attitudes and behaviors. For instance, increasing the number of television viewing hours has been shown to increase the demand for and consumption of advertised foods (Crockett & Sims, 1995).

Food labeling also influences children's eating behaviors. Though reading food labels may generally be thought of as an adult activity, it is important to note that children also come into contact with food labels on a daily basis and typically have some awareness about their purpose. In fact, better food labeling, so that nutritional information can be understood more easily, has been cited by youth as a potential motivator for their practicing healthier eating behaviors (Sheppard et al., 2006).

School environment

The school environment can influence children's eating behaviors through a variety of venues, including: price of foods at school, availability or lack of availability of healthy/unhealthy foods and snacks at school, and social influences at school related to food consumption and body image (e.g., Wills, Backett-Milburn, Gregory, & Lawton, 2005; Sheppard et al., 2006). Of great importance is the finding that children have reported believing that any food provided at school is healthy, especially if it contains natural food items such as potatoes, vegetables, or milk, and regardless of the presence of additives such as sugar and fats (Hesketh et al., 2005). Thus, the abundance or even just the presence of unhealthy foods in schools is a major barrier to children eating healthy. Children's apparent difficulty with or bias in differentiating healthy school foods from unhealthy school foods suggests that schools should be held especially accountable for influencing the food intake of children.

Schools may also be negatively influencing eating behaviors by making unhealthy foods socially rewarding. In a study by Stevenson and colleagues (2007), students alluded to the

healthy eating barrier of schools and teachers reinforcing the perception of unhealthy foods as a “treat,” because the students received these foods on special occasions. Since schools contribute directly to 35-40% of a student's total daily energy intake (Burghardt, Gordon, Chapman, Gleason & Fraker, 1993), these institutions strongly influence children’s overall eating behaviors. On a positive note, the National School Lunch Program, which aims to provide one third of the recommended dietary allowances for certain nutrients, reportedly results in higher nutrient intake among students who participate. However, participation declines with age as students in middle and high schools have more freedom to make their own lunch choices (Burghardt et al., 1993).

Social Relationship Factors

There are several social relationship factors that influence children’s eating behaviors. The two most prominent types of these social relationship factors are family influence and peer influence, both of which are discussed in the following section.

Family influence

A high percentage of children’s daily eating occurs at home, though that percentage declines with age (Story, Neumark-Szainer & French, 2002). In fact, Sheppard et al. (2006) reported results that further highlight the influence of family over other types of social influence. While influence from parents and family members was commonly mentioned among youth in focus group discussions, teachers and peers were least commonly cited as sources of information related to nutrition behaviors. Specifically, family factors such as parental modeling, parental encouragement, and parents’ personal experiences with specific foods, are known to influence the eating behaviors of youth (Fisher, Mitchell, Smiciklas-Wright, & Birch, 2002; Zeller, Saelens, Roehig, Kirk, & Daniels, 2004; Bruss et al., 2005; Sheppard et al., 2006; Zabinski et al., 2006; Savage, Fisher, & Birch, 2007).

Parents can influence the eating behaviors of their children through food exposure and accessibility, (Olvera-Ezzell, Power, & Cousins, 1990; Klesges, Stein, Eck, Isbell & Klesges, 1991; Cousins, Power & Olvera-Ezzell, 1993), as well as through modeling and reinforcement (Perry et al., 1998; Campbell & Crawford, 2001). Parental modeling and parental encouragement have been specifically found to be positively associated with children's consumption of fruits and vegetables (Zabinski et al., 2006; Fisher et al., 2007). In fact, studies have shown that repeated exposure to a parent or teacher eating a particular food can increase a child's preference for that food (Birch & Fisher, 2000; Addessi, Galloway, Visalberghi & Birch, 2005).

Of course, there are also many barriers that may prevent parents from promoting healthy eating behaviors among their children. Many parents will, in fact, admit to being poor examples for their children when it comes to eating (Cullen, Baranowski, Rittenberry & Olvera, 2000). Barriers reported by parents include issues such as the lack of knowledge about and accessibility to healthy foods (Acheson, 1998). Parental perceptions of children's eating behaviors could be another barrier limiting their successes in passing on healthy eating habits to their children. For example, it has been found that parents' tend to perceive their children's food preferences as rigid and inflexible (Hart et al., 2003), which may actually make parents less likely to encourage their children to try new healthy foods and more likely to "give up on" encouraging healthy eating behaviors, possibly before even making a significant attempt.

Past research has also suggested that parental permissiveness related to the consumption of unhealthy foods during childhood results in children eating more fats, sweet foods, and snacks during adolescence (de Bourdeaudhuij, 1997). Conversely, some evidence shows that stringent parental control of dietary behaviors during young childhood can actually result in increased negative effects, such as preferences for high-fat foods, limited acceptance of a variety of foods,

and poor regulation of energy intake by decreasing responsiveness to internal cues of hunger and satiety (Birch & Fisher, 1998). An interesting study conducted by Hart and colleagues (2003) showed that parents apply their authority differentially in association with their SES, with high SES parents being more likely to restrict food choice, such as limiting "junk foods," and low SES parents being more concerned with their children's eating adequate amounts of food. Additionally, high SES parents expressed being unsure about their ability to control their child's diet and underestimated their own need for further nutrition education.

Additionally, focus groups have revealed parental perceptions of gender stereotypes that influence the way parents interact with their children in relation to eating behaviors and weight. A focus group study based in the United Kingdom reported that parents rarely mentioned discussing weight issues with male children, due to parental perception of weight-gain as a natural occurrence for boys. In contrast, these parents reported directing greater concern toward short-term physical outcomes and weight gain in female children and as a result, were stricter regarding food choices for girls (Hart et al., 2003). Similarly, research has shown an association between mothers' own dieting and restrictive eating practices and the degree of restriction of female children's intake of snack foods but not male children's intake of snack foods (Fisher & Birch, 1998).

Even when parental encouragement does exist, it may not always result in intended positive outcomes. For example, youth may express defiance or independence through intentionally eating less healthy foods or not eating what they are told to eat (e.g., Hill, Oliver, & Rogers, 1992). Additionally, parents often apply their influence by using rewards or treats to encourage their children to like a particular food (Hart et al., 2003; Hesketh et al., 2005). However, the common practice of parents using unhealthy snacks or fast food as a form of

reward has been described by young people as negatively influencing their eating behaviors (Stevenson et al., 2007).

Family relations also appear to play a significant role in influencing children's engagement in healthy behaviors, including family communication (Baranowski, Nader, Dunn, & Vanderpool, 1982; Rimal & Flora, 1998) and family cohesion (Franko, Thompson, Bauserman, Affenito, Striegel-Moore, 2008; Tucker, Butler, Loyuk, Desmond, & Surrency, in press). More specifically, Franko and colleagues (2008) found that among overweight girls, stronger family cohesion was significantly associated with less soda intake and higher rates of breakfast consumption, and family cohesion was associated at the trend level with greater consumption of milk, fruits, and vegetables. Additionally, children perceive family involvement as a facilitator to healthy eating (Monge-Rojas et al., 2005). In one study, simply an increase in the frequency of family dinners was found to be associated with healthier diets and increased fruit and vegetable consumption among children and adolescents (Story et al., 2002). Thus, parents may or may not be aware of the degree to which they directly or indirectly influence the dietary behaviors of their children.

Peer influence

At school and other locations, youth spend much of their time interacting with their peers. Children are susceptible to the social influence of peers, including the influence of peers on each other's eating habits. Support for this view comes from an experimental research study involving dyads of overweight and non-overweight children. In this study, participants were provided with several unhealthy and healthy snacks to choose from and also a selection of games for entertainment. Results showed that an overweight child's consumption of healthy snacks was predicted by whether or not the other child in the dyad was also eating the healthy snacks. Interestingly, the non-overweight children were not affected by the eating choices of the other

member of the dyad (Salvy, Kieffer & Epstein, 2008). A similar phenomenon can occur in the school environment. Among students, friends' consumption of unhealthy foods has been found to greatly influence the students to also consume such foods (Woodward et al., 1996).

Additionally, focus group studies have contributed to the literature regarding the association of peer influence with the eating behaviors of youth. In a focus group study by Cullen and colleagues (2000), children reported that consuming healthy food items would incite negative comments from friends (Cullen, Baranowski, Rittenberry, & Olvera, 2000). In another focus group study, youth participants reported that making healthy eating a socially-accepted practice at school would encourage them to eat healthier foods (Monge-Rojas et al., 2005). Furthermore, a study conducted in Costa Rica revealed that gender stereotypes related to eating may be present among youth; specifically, students in this study explained that the consumption of healthy foods by males is considered "effeminate" and something that is not socially-accepted (Monge-Rojas et al., 2005). Although these findings were reported in the context of a different culture, such issues should likely be further investigated in the United States to determine if similar issues exist in the U.S. as well.

Cultural Factors

The prevalence of obesity in racial/ethnic minority children in the U.S. tends to be even higher than in non-minority children (Dwyer et al., 2000; Goran, 2001), with sociocultural factors playing a significant role (Bruss, Morris, & Dannison, 2003; Powdermaker, 1997). For instance, influential sociocultural factors may include cultural perceptions regarding dietary practices (Meigs, 1997; Powdermaker, 1997). Ethnic differences have been observed in the dietary intake of children (Brady, Lindquist, & Herd, 2000) and sociocultural messages have been identified as influential in children's dietary habits (Bruss et al., 2005).

Furthermore, studies with adults have shown that specific ethnocultural interpretations of healthy eating are used not only among older and less acculturated adults, but also to an extent among younger adults with higher levels of acculturation. Such findings suggest that even highly acculturated individuals in some racial/ethnic groups may still hold on to traditional ways of cooking and eating (Axelson, 1986; Satia-Abouta, Patterson, Neuhouser, & Elder, 2002), and thus influence the children for whom they prepare food. Additionally, while nutritional inadequacy or high fat content of some cultural/traditional foods may be a factor as to why certain ethnic groups experience a greater prevalence of diet-related diseases, the opposite has also been found.

Acculturation to the Western diet has been associated with decreased health (Satia-Abouta et al., 2002). On the other hand, a stronger cultural identity has been associated with healthier dietary behaviors (Bedaiko, Kwate, & Rucker, 2004). An enlightening study by Allen and colleagues (2007) described in further detail how such changes occur differentially among first-generation and third-generation Asian youth and Hispanic youth who live in the U.S. Measuring nutrition behaviors, including consumption of fruit, vegetable, milk, and soda, it was found that first-generation Asian youth and Hispanic youth had healthier diets than non-Hispanic White American youth. However, with succeeding generations, although Asian youth's healthy diets were maintained, Hispanic youth's fruit and vegetable consumption decreased and their soda consumption increased, such that by the third-generation, the Hispanic youth's nutrition behaviors were poorer than those of the non-Hispanic White youth (Allen et al., 2007). Currently, there is a lack of literature on the effects of cultural environment on children's food consumption among various racial/ethnic groups and on the perspectives of children and their

parents on healthy eating. These are two areas that require further exploration in order to design health promotion interventions that are tailored to the needs of different cultural groups.

Economic Factors

Economic concerns (e.g., cost) have been reported by adults to negatively impact healthy eating behaviors in regard to healthy food selection and preparation (Glanz et al., 1998; Bruss et al., 2005). In a study by Bruss and colleagues (2005), although participants identified reading labels as a strategy for selecting lower-fat food items, those who reported the tendency to look for lower-cost items reported not commonly using this strategy. Some studies have shown an awareness of economic issues among young people as well. Specifically, studies have shown the perception among youth that healthy foods are more expensive and that price is a barrier to buying those foods over less expensive, unhealthy foods (Sheppard et al., 2006; Stevenson et al., 2007). Economics research shows that this phenomenon is more than merely perception. From a baseline of 100 during 1982-1984, the price index for fresh fruit and vegetables increased to 258 by 2002 (far exceeding general inflation), whereas the price index for soft drinks increased only to 126 by 2002 (below general inflation) (Sturm, 2005).

Previous research has demonstrated that health disparities regarding diet-related health problems, such as obesity, exist among children of lower socioeconomic status (Jain et al., 2001; McArthur et. al, 2004; Lutfiyya et al., 2008). Income impacts the likelihood of childhood overweight/obesity in at least two specific ways: (a) it results in having to live in unsafe neighborhoods and (b) it impedes access to and the ability to purchase healthy foods.

Indeed, children whose families have low household incomes are more likely to be limited in their ability to be physically active on a daily basis because of safety concerns that make outside play less likely. Additionally, children who live in lower-income neighborhoods are likely to have poorer access to stores that carry a variety of fresh produce and a variety of

other healthy food choices, such as whole-grain foods and low-fat dairy products (Krebs & Jacobson, 2003). Low-income level may also affect prevalence of childhood obesity by way of decreased access to health care, a potential mechanism for exposure to health education related to diet modification or for early intervention to promote a healthy diet and/or overcome obesity. In one study, not having received preventive care in the past 12 months was significantly associated with being overweight or obese among children across three racial/ethnic groups (Lutfiyya et al., 2008).

Knowledge/Educational Factors

Previously conducted focus group studies that have assessed factors influencing healthy eating among children have reported that children have a general awareness of health, although many of these studies have occurred outside of the United States. For instance, a study conducted in Australia by Hesketh and colleagues (2005) reported that children were well informed about the health value of different foods, could identify healthy versus unhealthy foods, and were aware of the nutrients contributing to their perception of foods being more or less healthy. The study also found that many children mentioned food labels as a source of information and that some children discussed the consequences of eating healthy and unhealthy foods (Hesketh, Waters, Green, Salmon, & Williams, 2005). Similarly, a large focus group study conducted in England with 300 participants reported that children understood the concept of a balanced diet and were aware of the relationship between their diet and their health, as well as the consequences of eating too much fat (Dixey, Sahota, Atwal, & Turner, 2001). A mixed qualitative-quantitative study by Edwards and Hartwell (2002) reported that 75% of children were familiar with the term “healthy eating” and that school was cited as the most common source of information.

Health knowledge appears to increase with grade level among elementary school students, although this is not necessarily true for health behaviors (Cartland & Ruch-Ross, 2006). Research findings regarding the influence of knowledge on healthy eating (e.g., fruit and vegetable intakes) among children varies across studies (e.g., Resnicow et al., 1997; Gibson, Wardle, & Watts, 1998; Reynolds, Yaroch, & Franklin, 2002; Reynolds, Bishop, Chou, Xie, Nebeling, & Perry, 2004; Blanchette & Brug, 2005; Fahlman, Dake, McCaughtry, & Martin, 2008). This variation in findings may be partially due to variation in the type of and the way in which knowledge is assessed across studies.

Based on their systematic review of the effectiveness of interventions targeting fruit and vegetable consumption among children, Blanchette and Brug (2005) concluded that specific knowledge of daily fruit and vegetable intake recommendations is a relevant determinant of fruit and vegetable intake. Other researchers have reported that knowledge of healthy eating is modifiable through interventions to facilitate such knowledge (e.g., Cullen, Bartholomew, & Parcel, 1997; Baranowski et al., 2000; Davis et al., 2000; Reynolds et al., 2002; Fahlman et al., 2008). However, because interventions to modify knowledge of healthy eating typically include other intervention components (i.e., are multifaceted), it is difficult to determine the independent effects of the knowledge of healthy eating component.

Psychosocial Factors

Personal preference, attitudes toward healthy eating, motivation, awareness and knowledge of healthy eating, health self-efficacy, and concern about becoming overweight or getting other health problems are all examples of psychosocial factors that can impact children's healthy or unhealthy eating behaviors. Preference/taste (e.g., preferring the taste of fast food) or other food aesthetics (e.g., texture, appearance, and smell) are possibly the most commonly cited factors influencing youth's eating behaviors (e.g., Bruss et al., 2005; Sheppard et al., 2006;

Stevenson et al., 2007). Primary school children have described healthy food as “boring” and something for adults (Watt & Sheiham, 1997).

Some young people tend to group foods into “good foods” and “bad foods,” with the perception of the bad foods being less healthy but more tasty than the good foods, and with the view that taste is a more influential factor than healthiness (Stevenson et al., 2007). Taste and food preferences often guide food choice (Birch & Fisher, 1998; Glanz, Basil, Maibach, Goldberg & Snyder, 1998), and children’s preference for junk foods is stronger than their preference for fruits and vegetables (Cullen et al., 2000). However, African American, Mexican American, and European American children in focus groups reported that modification during food preparation, such as adding strawberries to a salad or a favorite vegetable to an unappealing dish, and being offered low-fat instead of fat-free alternatives, can make healthy foods more appealing (Casey & Rozin, 1989).

Children exhibit generally positive attitudes toward healthy eating (Sheppard et al., 2006), yet it appears that children do not fully perceive the long-term health risks that accompany a poor diet (Watt & Sheiham, 1997). Perceptions of value have also been found to influence the eating behaviors of youth (Sabiston & Crocker, 2008.) For instance, lack of enjoyment in eating fruits, vegetables and foods low in fat has been found to be negatively associated with consumption of these foods (Backman, Haddad, Lee, Johnston, & Hodgkin, 2002; Sabiston & Crocker, 2008).

Other psychological factors (e.g., motivators or barriers) influencing the eating behaviors of young people include: having the will-power to eat healthy foods, valuing the ability to choose their own healthy foods (Sheppard et al., 2006) and experiencing a particular emotion or mood state (e.g., desiring certain foods such as chocolate when feeling upset, depressed, or bored)

(Stevenson et al., 2007). Physical appearance has also been identified among youth as an influential factor, such as reporting a desire to eat healthy in order to improve one's appearance, as well as the concern that eating fast food can have negative consequences on one's weight and facial appearance (Sheppard et al., 2006).

Theories Used for Understanding Eating Behaviors

A limited number of published studies with interventions targeting healthy eating among children have included a discussion of the theory on which the intervention is based. Intervention studies that have included a discussion of theoretical framework have primarily utilized one of or a combination of the following theories: (a) the health belief model (e.g., Becker, Maiman, Kirscht, Haefner, & Drachman, 1977; Sin & Lee, 2006; Jones et al., 2007), (b) the transtheoretical model of behavior change (e.g., Fitzgibbon, Stolley, Dyer, VanHorn, & KauferChristoffel, 2002; Di Noia, Contento, & Prochaska, 2008), (c) the theory of planned behavior (e.g., Contento, Koch, Lee, Sauberli, & Calabrese-Barton, 2007; Gratton, Povey, & Clark-Carter, 2007), and (d) social cognitive theory (e.g., Corwin, Sargent, Rheaume, & Saunders, 1999; Resnicow et al., 1997; Fitzgibbon et al., 2002; Horowitz, Shiltz, & Townsent, 2004; Rinderknecht & Smith, 2004; Thompson, Baranowski, J., Cullen, & Baranowski, T., 2007; Richards & Smith, 2007). Each of these theories is presented briefly below along with the more recently developed health self-empowerment theory (Tucker et al., in press).

Health Belief Model

The health belief model (HBM) is a psychological expectancy-value model (Janz et al., 2002) which suggests that an individual's engagement in a particular behavior is based on the value the individual places on a particular goal (e.g., the desire to prevent illness or to get well) and on the individual's estimate of the likelihood that a given action will achieve that goal (Bartholomew, Parcel, Kok & Gottlieb, 2006). The HBM is comprised of the following four

constructs (Janz & Becker, 1984): (a) perceived susceptibility (perceived personal risk), (b) perceived severity (perceived seriousness of contracting an illness), (c) perceived benefits (of a particular action to reduce the threat of illness), and (d) perceived barriers (to engaging in that particular action to reduce the threat of illness). Some researchers have adapted the HBM to also include the constructs of self-efficacy and perceptions of social influence (e.g., Stecher, DeVellis, Becker, & Rosenstock, 1986). The HBM may be most helpful in understanding relatively simple health behaviors, such as pursuing mammography screening or immunization (Janz et al., 2002), but it has also been shown to have some predictive validity for more complicated health behaviors, such as diabetes self-care (Bartholomew et al., 2006).

Transtheoretical Model of Behavior Change

The transtheoretical model of behavior change (TTM) is informed by the stages of change model (Prochaska & DiClemente, 1984). Specifically, TTM involves examining an individual's psychological stage of change (i.e., how much intention the individual has to actually change a behavior) and then choosing an appropriate method for processing that change. TTM was originally used in relation to cessation for addictive behaviors but has more recently been used to predict engagement in health-promoting behaviors (Prochaska et al., 2002).

Theory of Planned Behavior

The theory of planned behavior (TPB, Ajzen, 1988) is based on the premise that intention, as the most proximal determinant of behavior, results from three conceptually independent constructs: (a) attitude, (b) subjective norms, and (c) perceived behavioral control. According to this theory, an individual's attitude about a behavior is based on the individual's belief that a certain outcome will result from that behavior. The second major determinant of behavior, according to TPB, is the construct of subjective norms. This construct is likened to perceived social expectations (i.e., the idea that important social referents either approve or

disapprove of performing the behavior). Finally, the construct of perceived behavioral control is conceptually similar to Bandura's (1986) self-efficacy construct. Current developments in TPB have suggested additional determinants, such as personal moral norms, anticipated regret, and the relationship between intention and behavior, known as "implementation intention" (Bartholomew, 2006).

Social Cognitive Theory

Social cognitive theory (SCT, Bandura, 1986) is an interpersonal theory that takes into account both the determinants of behaviors and the processes of behavior change (Bandura, 1997; Baranowski et al., 2002). The major determinants of behavior as described by SCT include the following: (a) outcome expectations, (b) self-efficacy, (c) behavioral capability, (d) perceived behavior of others, and (e) environment. Specifically, an outcome expectation is an individual's judgment about what consequences are likely to be produced by a certain behavior. Self-efficacy is a judgment about an individual's own ability to accomplish a certain goal. Behavioral capability is combined knowledge about a behavior and knowledge of how to perform the behavior (i.e., skill). Perceived behavior of others, a construct largely affected by modeling, is distinguishable from perceived social expectations in that it refers to an individual's perception of others' engagement in a particular behavior, as opposed to an individual's perception about others' *opinions about* engagement in a particular behavior. Finally, environment refers to all of the factors that are physically external to an individual and might affect that individual's behavior (Bartholomew et al., 2006).

Finally, Bandura (1986) stated that in order for learning to take place, it must be accompanied by facilitation. Facilitation involves providing the means for the learner to take action or, alternatively, providing the means to reduce barriers to action (Bandura, 1986; Mullen, Mains, & Velez, 1992). More recently, Bandura (2004) has written about SCT specifically as it

relates to health promotion. Bandura (2004) posits that an effective prevention program for children would include four major components: (a) an information component to inform children of the health risks and benefits of various behaviors, (b) a social and self-management skills component for translating concerns into effective prevention practices, (c) a self-efficacy inducing component to support the “exercise of control in the face of difficulties and setbacks that inevitably arise” (p. 158), and (d) a social support component.

Health Self-Empowerment Theory

The health self-empowerment theory (HSET, Tucker et al., in press) is inclusive of the self-efficacy construct of SCT and acknowledges the influence of social/environmental variables (e.g., poverty, limited health care access). However, given the intractable nature of these variables in ethnic minority and low-income communities, HSET gives central importance to the modifiable, self-empowerment-oriented, cognitive-behavioral self-variables, as they empower children and adolescents, as well as parents, to exert control over aspects of their lives that they can change, even though there may be a multitude of aspects that they cannot change. In this manner, individuals may become empowered to engage in goal behaviors (e.g., health promoting behaviors) under whatever social and environmental conditions exist in their lives. According to HSET, the self-empowerment variables are (a) health motivation, (b) health self-efficacy, (c) self-praise of health behaviors, (d) coping skills for managing emotions such as stress and anxiety, and (e) health responsibility (i.e., being informed and doing the work needed to make healthy choices).

Theories Informing the Present Study

The current study explores the motivators of and barriers to healthy eating behaviors among children. There is evidence that nutrition education programs are more likely to be effective if they attend to motivators and reinforcers of change, as well as to knowledge/lack of

knowledge about relevant nutrition information (Contento et al., 1995; Baranowski et al., 2003). Evidence also suggests that examination of factors that influence health behaviors is of great importance for developing interventions (Lowe, Dowek, & Horne, 1998). Furthermore, Heckhausen (1991) and Gollwitzer (1993) have suggested that the adoption of health behaviors involves two phases: motivational and volitional. The lesser-discussed volitional phase goes beyond motivation to describe when a person engages in planning, such as the development of an “implementation intention,” in order to actually act out the behavior (Gollwitzer, 1999). Gratton and colleagues (2007) point out that although motivational and volitional-based interventions have successfully brought about dietary behavior change among adults, only a small number of studies have examined these interventions’ efficacy for changing the dietary behaviors of children.

Examining the motivators of and barriers to children’s healthy eating behaviors fits well with many of the previously-described approaches. For instance, in the motivational and volitional phase approach of Gollwitzer (1993) and Heckhausen (1991), researchers developing interventions for healthy eating behaviors would clearly benefit from knowing children’s motivators of healthy eating, as well as their barriers to healthy eating, in order to create an “implementation intention” that incorporates how to increase motivators and overcome barriers. Additionally, the feeling of being able to overcome one’s barriers should lead to increased self-efficacy and/or perceived behavioral control, which are central constructs to theories such as SCT, TPB, and HSET. The idea of examining barriers is also incorporated in various ways into SCT (i.e., “impediments”), HBM (i.e., “perceived barriers”), and some of the processes of TTM (e.g., “coping with barriers,” and “dealing with barriers”). Similarly, identifying motivators is incorporated in various ways into SCT (i.e., “facilitators”), TTM (e.g., through “perception of

benefits”), HBM (i.e., in relation to “perceived benefits), and HSET (e.g., health motivation) (Janz & Becker, 1984; Bandura, 2004; Bartholomew et al., 2006; Tucker et al., in press). Thus, the concept of identifying motivators and barriers to healthy eating appears to be supported by multiple health behavior focused theories.

Interventions Promoting Healthy Eating among Children

Types of Interventions

To date, the majority of the intervention research on promoting healthy eating among children has been based in school settings. These school-based interventions, both within and outside of the U.S., have taken a variety of approaches and targeted many variables including: changing school meals (Luepker et al., 1996; Reynolds et al., 2000; Sahota et al., 2001); teaching nutrition education (Fahlman, Dake, McCaughtry, & Martin, 2008); increasing self-efficacy to engage in health behaviors (Reynolds et al., 2000; Fahlman et al., 2008); increasing the availability of healthy foods (French, Story, Fulkerson, & Hannan, 2004); working in schoolyard gardens (McAleese & Rankin, 2007); utilizing video-based peer modeling (Horne, Lowe, Bowdery, & Egerton, 1998); increasing family involvement (Luepker et al., 1996; Reynolds et al., 2000); offering verbal encouragement from food-service staff (Perry, Bishop, & Taylor, 2004); and overcoming barriers to healthy behaviors (Gratton et al., 2007). Some of the intervention programs targeting healthy eating behaviors have been in the context of an overweight prevention/intervention program that also targets physical activity (e.g., Sanigorski, Bell, Kremer, Cuttler, & Swinburn, 2008), while others have focused strictly on healthy eating behaviors, either in general (e.g., French et al., 2004; Fahlman et al., 2008) or in regard to a particular healthy eating behavior, such as consuming fruits and vegetables (e.g., French & Stables, 2003; Perry et al., 2004; McAleese & Rankin., 2007).

While past intervention studies have tended to utilize nutrition education to influence attitudes, knowledge, skills, and eating practices, more recent interventions have tended to focus on behavioral modification strategies (Shaya et al., 2008). In addition to knowledge, public health efforts have focused on individual awareness to promote dietary changes (French & Stables, 2003). Some interventions have attempted to promote awareness and dietary changes by implementing more interactive programs that are designed to respond to the specific needs of a particular community and to fit with the population's current lifestyle. For example, one study used schoolyard gardening programs as a hands-on method for delivering nutrition education to children – a method that resulted in a significant increase in fruit and vegetable consumption among the children who participated in these programs (McAleese & Rankin, 2007).

Other studies have focused on the home as the primary means of implementing interventions to promote healthy eating. For instance, the “High 5 for Kids” program underlined the importance of intervention in a "real world" context by using a home-based education approach to improve the fruit and vegetable intake among children and their parents. Components included making home visits and providing families with nutrition-focused storybooks (Haire-Joshu et al., 2008).

Efficacy and Limitations of Interventions

The efficacy of various intervention programs to promote healthy eating among children has been assessed using a range of variables. Examples of these variables include physiological factors (e.g., BMI), dietary intake of certain foods (e.g., number of servings of fruits and vegetables or the number of servings of low-fat foods), and psychological factors (e.g., self-efficacy, awareness, knowledge and motivation). Systematic reviews of interventions to promote healthy eating among young people have shown mixed results (White, Carlin, Rankin, &

Adamson, 1998; Campbell, Waters, O'Meara, Kelly, & Summerbell, 2002; Sheppard et al., 2006).

A review by French and Stables (2003) of school-based environmental interventions to promote healthy eating among children is one of the reviews that showed mixed results. It was reported in this review that several multi-component school-based programs aiming at increasing fruit and vegetable intake (e.g., including classroom education, food service changes, and a parent activity component) have shown significant increases in fruit intake but few or no increases in vegetable intake, with change in vegetable intake ranging from 0 to 0.3 servings. The authors of this review questioned the degree of practical significance of the increases in fruit intake found in some of the reviewed studies (i.e., increases ranging from 0.2 to 0.6 servings per day). In addition to fruit and vegetable intake, the review also examined interventions targeting the consumption of low-fat foods. The results of school-based environmental interventions targeting the consumption of low-fat foods suggest that increasing availability and reducing prices of these foods, as well as providing point of purchase promotions regarding these foods, are effective strategies for increasing consumption of these foods.

A large review by Shaya and colleagues (2008) examined school-based obesity interventions that occurred from 1986-2003. Most of the interventions targeted both nutrition behaviors and physical activity behaviors. The review reported that some of the short-term interventions (i.e., less than six months in duration) demonstrated statistically significant positive changes in outcomes such as reduced diastolic blood pressure, increased physical activity, and reduced tricep skin folds. However, the persistence of these results was not observed (Shaya, Flores, Gbarayor, & Wang, 2008). Similarly, findings from the three-year school-based CATCH program, which involved over 5,000 ethnically-diverse children, demonstrated reductions in self-

reported fat intake but no maintenance of these reductions at follow-up. Furthermore, findings from the CATCH program revealed no significant changes in participants' blood pressure, body size, or cholesterol (Luepker et al., 1996).

Sheppard and colleagues (2006) conducted a systematic review of studies that focused on barriers to and facilitators of healthy eating among youth. This review included 22 outcome evaluation studies of intervention programs both within and outside of the U.S. Of the 22 examined programs, only 7 were judged by the authors to be methodologically sound. A summary of those seven programs and their results follows.

A five-year school-based intervention in New York (Walter, 1989) showed increases in knowledge but no significant changes in cholesterol levels or dietary fat. The large three-year "Gimme 5" program (Nicklas, Johnson, Myers, Farris, & Cunningham, 1998) aimed at increasing fruit and vegetable consumption utilized a multidimensional approach, including a school media campaign, classroom activities, parent involvement, and changes in the school meals, also showed significant changes in knowledge between control and intervention groups. Additionally, this program showed significant increases in fruit and vegetable consumption. It is noteworthy, however, that although the changes in knowledge were maintained at follow-up, the behavioral changes in fruit and vegetable consumption were not sustained (Sheppard et al., 2006). Additionally, a United Kingdom-based intervention (Moon et al., 1989) that sought to make school-wide changes in curriculum and organizational functioning showed little change in knowledge about healthy foods, but some increase in choosing healthy foods, with variation according to age and gender.

Another U.S. study, the "Slice of Life" intervention program (Perry, Klepp, & Halper, 1987), which involved peer leaders, included a curriculum designed to promote healthy eating

and physical activity by targeting knowledge about benefits of fitness and characteristics of a healthy diet, social influences, and environmental influences. The program showed significant increases among females in healthy eating, knowledge, reading labels, and awareness of healthy eating and a decrease in salt consumption. However, males showed significant changes only for decreased salt consumption and increased knowledge scores.

A school-based program that took place in Norway similarly utilized peer leaders as a main component of the intervention. Additionally, this program provided students with computer software that could be used to analyze the nutritional content of the foods they consumed. Results from this program showed significant increases in healthy eating behavior (maintained among females but not among males) and in knowledge about healthy foods (among males but not among females) (Klepp & Wilhelmsen, 1993).

The “North Karelia Youth Programme” based in Finland used a multi-dimensional approach involving classroom activities, a community media campaign, health-screening activities, changes to school meals, and health education initiatives in parents’ workplaces to increase health behaviors and improve coping skills among secondary school youth. The program was effective in increasing healthy eating behaviors and reducing systolic blood pressure among the participating youth. However, the program was not as effective in reducing cholesterol levels or diastolic blood pressure (Vartiainen, Tossavainen, Viri, Niskanen, & Puska, 1991).

In sum, the systematic review of the above-mentioned studies by Sheppard and colleagues (2006) suggests that interventions to promote healthy eating among children appear to be typically more effective among females than males and that “while there is some evidence to suggest effectiveness [of these interventions], the evidence base is limited” (Sheppard et al.,

2006, p. 254). Furthermore, because many studies of interventions to promote healthy eating among children either do not test or test but do not demonstrate the sustainability of positive effects (e.g., Sahota et al., 2001; Perry et al., 2004; Gratton et al., 2007; McAleese & Rankin, 2007; Fahlman et al., 2008; Haire-Joshu et al., 2008), it is difficult to determine whether or not these interventions are efficient and effective in making lasting improvements in eating behaviors among children. Consequently, it is difficult to justify implementation of such interventions in schools.

Other limitations of past intervention programs include the tendency to focus more attention on adolescents than on children and the failure to address low-income and/or racial/ethnic minorities (Horne et al., 1998; Sahota et al., 2001; Perry et al., 2004; McAleese & Rankin, 2007). Some programs have shown disproportionate drop-out rates among African Americans as compared with other racial/ethnic groups (e.g., Luepker et al., 1996), while other studies have ignored the inclusion of minority groups altogether. In fact, Sheppard and colleagues (2006) noted in their review of intervention programs designed to promote healthy eating among youth that although the studies varied in their reporting of demographic characteristics, it appeared that most participants were non-Hispanic White American and lived in middle class urban areas. Specifically, only 6 of the 22 examined intervention studies included minority youth (Sheppard et al., 2006). Clearly, it is important that racial/ethnic minority youth and youth from low-income families be well-represented in future studies to investigate interventions designed to increase healthy eating and/or other health promoting behaviors among youth.

The fact that the obesity epidemic remains persistent indicates that current interventions are still not fully addressing those variables that are directly contributing to the poor eating

patterns of children. Moreover, the mixed results regarding the long-term effectiveness of past intervention programs to promote healthy eating have impeded efforts to address childhood obesity (Shaya et al., 2008). It may also be the case that the lack of success in eliminating childhood obesity is due to not having identified important factors in this health problem or in unhealthy eating behaviors.

Past studies are supported by previous notions surrounding obesity and healthy eating, and these notions may not be reflective of the current eating environment of Americans or of the differential factors affecting various sub-groups of children. As noted in Sheppard and colleagues' (2006) systematic review, there appear to be differential impacts of interventions on male and female children, suggesting the possibility that some of the factors influencing boys' and girls' healthy eating behaviors may be different. Furthermore, there may be factors influencing healthy eating behaviors that have yet to be uncovered and that are specifically associated with low-income children and/or with racial/ethnic minority children, as there is a paucity of research focusing on these populations. Further investigations surrounding healthy eating in children should incorporate investigation by gender and race/ethnicity related factors and should allow children to voice their own experiences surrounding today's healthy eating practices, rather than relying on pre-existing theories or solely on the reports of adults (e.g., parents, teachers).

Overview of Present Study

Purpose of Present Study

The purpose of the present study was to use focus groups to identify motivators of and barriers to engagement in healthy eating behaviors among African American, Hispanic, and non-Hispanic White American children (ages 9 to 12) from families with low household incomes. Focus groups may be defined as thoughtful, planned discussions among participants with similar

experiences that allow the moderator of these groups to obtain the individuals' cognitive and emotional perceptions regarding a topic or topics and to do so in a non-threatening and relaxed environment (Heary & Hennessy, 2002). Unlike an interview or survey methodology, a unique aspect of the focus group methodology is that it creates a setting that encourages spontaneous discussion among its participants. Specifically, listening to one participant's response to a proposed question effectively encourages other participants to share their own experiences, with minimal feedback from the moderator (Gilflores & Alonso, 1995).

Focus groups have been successfully used to identify factors influencing engagement in health promoting behaviors among adults (e.g., Belza, Walwick, Shiu-Thornton, Schwartz, & Taylor, 2004; Birkett, Johnson, Thompson, & Oberg, 2004; Croy & Marquart, 2005; Plowden, Wendell, Vasquez, & Kimani, 2006); however, few studies have used focus groups to identify factors that influence the healthy eating behaviors of children. Some studies that have used focus groups to examine the influences on children's healthy eating behaviors have involved only the parents of children as focus group participants, as opposed to the children themselves (e.g., Hart, Herriot, Bishop, & Truby, 2003). However, recent research has indicated that using focus groups is an excellent means of identifying young people's views on health and wellness (Peterson-Sweeny, 2005).

Research that has used a focus group methodology to identify factors influencing healthy eating among youth has typically involved adolescents as participants (e.g., Neumark-Sztainer et al., 1999; Monge-Rojas et al., 2005) rather than children. Furthermore, the studies that have in fact used focus groups to identify useful, first-hand information about why children do or do not engage in healthy eating behaviors typically have occurred in countries other than the United States, such as Australia or England (e.g., Hesketh et al., 2005; McKinley et al., 2005).

Need for a Culturally Sensitive Research Approach

Focus groups in the present study were conducted in accordance with the Difference Model research approach (Oyemode & Rosser, 1980). The Difference Model approach advocates separately studying groups who are culturally different, thus avoiding the Deficit Model research tradition of comparing one group to another and viewing lower performance by one group as an indicator of that group's deficits rather than as an indicator of group differences. As advocated by the culturally sensitive Difference Model research approach, the present research examined the motivators of and barriers to healthy eating separately by racial/ethnic group. Such a method may be particularly indicated for health research, due to previous research positing that factors influencing health outcomes and behaviors may vary according to ethnic background (Kumanyika, Morssink, & Agurs, 1992; Neumark-Sztainer et al., 2002; Dietz, 2004).

Additionally, people of culturally diverse backgrounds have been traditionally under-represented in research, specifically in research examining health promoting behaviors such as healthy eating and physical activity (Treloar, 1999). Many studies focusing on youth's views of factors that influence their healthy eating have either not reported race/ethnicity or have consisted of predominantly non-Hispanic White participants (Sheppard et al., 2006). Furthermore, Bruss and colleagues (2005) have asserted that in order to develop clarity of definitions and culturally-sensitive language for use in childhood nutrition education, it may be necessary to conduct qualitative studies that differentially examine children by age, gender, and/or culture.

Description of Present Study

The present study was part of a larger, multi-phase study (i.e., the UF-PepsiCo Community-Based Family Health Self-Empowerment Project to Modify and Prevent Obesity) funded by the PepsiCo Foundation that was designed to test the impact of a family health

promotion workshop series on the health promoting behaviors of low-income African American, Hispanic, and non-Hispanic White American children, adolescents, and adults. The present study, which was part of the first phase of the larger study, helped inform the workshop series intervention that was tested in the larger study. Specifically, the present study involved conducting focus groups with child participants (ages 9 to 12) for the purpose of identifying these children's perceptions of the motivators of and barriers to their engagement in healthy eating behaviors.

The specific healthy eating behaviors that were the focus of this research include (a) eating healthy food and snacks that are lower in fat and calories and (b) eating fruits, vegetables, and whole grains. Because qualitative research such as focus group research typically involves moving from observation to hypothesis (i.e., is inductive in nature), there were no predetermined study hypotheses/outcomes (Pope & Mays 1997).

Research question #1: What are the motivators of and barriers to healthy eating as reported by low-income children who self-identify as African American, Hispanic, or non-Hispanic White American?

Research question #2: Are there differences among the perceived motivators of and barriers to healthy eating in association with gender and/or race/ethnicity?

CHAPTER 3 METHODS

Participants

Six focus groups were conducted with a total of 37 children (17 females and 20 males). Each participant was required to meet the following inclusion criteria: (a) be 9 to 12 years old, (b) have a family income of \$40,000 or below, as reported by the participant's parent/guardian, and (c) be African American, Hispanic, or non-Hispanic White American, as identified by the participant's parent/guardian. The participating children ranged in age from 9 to 12 years old, with a mean age of 10.7 years ($SD = 1.1$). The racial/ethnic composition of the participants was 29.7% African American, 40.5% Hispanic, and 29.7% non-Hispanic White American. Descriptive information on the age, gender, and racial/ethnic distributions of participants is shown in Table 3-1.

The number of participants per focus group ranged from four to seven, with five being the median number of participants per focus group. The range of the number of participants per focus group was largely due to the unpredictability of how many confirmed participants would actually attend a focus group versus the number of participants who confirmed attendance to that focus group.

Instruments

Two instruments were used in conducting this study. Below are brief descriptions of these instruments.

Demographic and Health Information Data Questionnaire (DHIDQ)

The *Demographic and Health Information Data Questionnaire* (DHIDQ), which was given to each participant and their parent/guardian to be completed together, assessed race/ethnicity, age, gender, whether or not the child was on a special diet because of a health

condition (such as diabetes or hypertension), and whether or not the child was trying to lose weight.

Focus Group Questioning Route (QR)

A researcher-constructed *Focus Group Questioning Route* (QR) was developed to guide the focus group discussion (Krueger, 1988; Stewart & Shamdasani, 2000). The QR was orally administered by trained focus group leaders for the purpose of exploring participants' motivators of and barriers to healthy eating and physical activity-related behaviors. However, the present study focused specifically on the following healthy eating behaviors: (a) eating healthy foods and snacks that are lower in fat and calories and (b) eating fruits, vegetables, and whole grains. The QR consisted of questions to elicit the motivators of and barriers to each healthy eating behavior.

Example questions on the QR to elicit motivators of healthy eating behaviors are as follows: "If you eat fruits and vegetables each day, why do you eat them?" and "If you do not eat fruits and vegetables each day, what would encourage you to eat them?" Example questions on the QR to elicit barriers to healthy eating behaviors are as follows: "If you don't eat fruits and vegetables each day, why not?" and "If you do eat fruits and vegetables each day, why is it not always easy to eat them?" The QR also consisted of a few introductory questions that were not designed to elicit motivators or barriers but rather to initiate conversation about the topic at hand (e.g., "What do you think about when you hear the words 'healthy eating'?" and "What are some of your favorite fruits and vegetables?"). Examples of "healthy foods that are lower in fat and calories" and whole-grain foods were presented before the questions related to these topics, for the purpose of clarification (e.g., "Examples of choosing healthy foods are baked chicken instead of fried chicken...a meal with vegetables in it instead of no vegetables in it...").

Procedures

Participant Recruitment

Multiple strategies were used to recruit participants who met the inclusion criteria. One participant recruitment strategy involved the posting or dissemination of English and Spanish versions of participant recruitment flyers at local businesses and institutions such as churches, grocery stores, restaurants, schools, and libraries. These flyers included a brief description of the study, the participation inclusion criteria, and information for contacting the researchers. Parents of potential participants who expressed interest in the project by calling the phone number on the flyers were asked to verify that their child met the participant criteria.

Other participant recruitment strategies included (a) recruiting participants on-site at local community locations (e.g., churches, community recreation centers, grocery stores) and community events (e.g., a Martin Luther King, Jr. Day Celebration), (b) giving presentations about the project at community meetings, after-school programs, and neighborhood revitalization council meetings, and (c) using the snowball technique – a strategy in which individuals who have agreed to participate in the project disseminate recruitment flyers to other persons they know and encourage these other persons to be research participants. Finally, given the research literature regarding the typical difficulty of recruiting minority research participants, two Hispanic community member participant recruiters and two African American community member participant recruiters were paid a small honorarium to recruit participants for this study from within their local community.

All recruiters and recruitment materials provided potential focus group participants with information on the purpose and procedures of this study. The stated purpose of the research was to identify motivators of and barriers to health promoting behaviors. The stated procedures were as follows: (a) participants would take part in a two-hour audiotaped and videotaped discussion

group during which they would be asked a series of questions about what motivates them to engage in health behaviors and what prevents them from engaging in those behaviors, and (b) at the end of the focus group discussion, participants would be paid \$15 in cash for their participation. It was also stated that (a) all information identifying research participants would be kept confidential, (b) members in a discussion group would be similar in terms of race/ethnicity, age group, and gender, (c) participants could choose to not respond to any question asked by the discussion group leaders, (d) a parent or legal guardian must accompany each participant to the site of the focus group and sign a Parental/Guardian Consent Form that provides permission for the child to participate in a focus group, and (e) before the discussion group began, each participant, along with a parent/guardian, would be asked to complete a written demographic questionnaire that would take approximately five minutes to complete.

Focus Group Leader Training

Each of the six focus groups was conducted by a leader, co-leader, and notetaker whose gender and race/ethnicity matched the gender and race/ethnicity of the children in that group. All Hispanic focus groups were conducted by leaders, co-leaders, and notetakers who were fluent in both English and Spanish. Focus group leaders were typically university faculty or graduate students who were familiar with the research project and focus group methodology. Focus group co-leaders were typically undergraduate students whose primary role was to promote rapport between the leaders and the focus group participants and to facilitate comfort among group participants. Notetakers were undergraduate research assistants who sat just outside the group circle and recorded observations of nonverbal behaviors, as well as key comments and interactions. Notetakers did not participate in focus group discussions.

Before conducting the planned focus groups, leaders, co-leaders, and notetakers participated in small group or individual training sessions led by project researchers that included

training on (a) goals and procedures of the focus groups, (b) strategies and techniques for facilitating discussion among focus group participants, and (c) methods of managing group dynamics (e.g., strategies for ensuring that everyone in the group has a chance to talk, including quiet or shy group members, and strategies for limiting the amount of talking by group members who try to monopolize the group discussion). All focus group leaders, co-leaders, and notetakers were provided with a training manual and the *Focus Group Questioning Route* days prior to leading the discussion. On the day of each focus group, researchers met with the leader, co-leader, and notetaker for the purpose of answering their questions and reviewing the focus group procedures. These researchers remained at the location of each focus group to answer questions from the focus group leaders, co-leaders, and note-takers, as well as focus group participants, and to help with focus group logistics (e.g., setting up and testing the video cameras, reading Assent Forms to participants).

Focus Group Implementation

Each focus group was held at a convenient community site (e.g., a library or community center) on a weeknight or a weekend day. Upon arrival at the site, parents/guardians of the participating children were given a Parental/Guardian Consent Form to sign, and research assistants read an Assent Form to the participating children. Parents/guardians of participants were given the option of having forms read aloud to them if they preferred this to self-completion. Parents/guardians who preferred Spanish were provided with Spanish versions of Parental/Guardian Consent Form. The Parental/Guardian Consent Form and the Assent Form included information regarding the purpose of the study, length of time required for participation, payment amounts and methods, and various research procedures, including procedures to protect the confidentiality of information obtained from participants. Participants, along with their parent/guardian, then completed the *Demographic and Health Information Data*

Questionnaire. After completing these documents, focus group participants and their parents/guardians were served a meal for the purposes of promoting comfort among participants and showing appreciation for their participation.

Next, all non-participants (e.g., parents/guardians, researchers) vacated the room where the focus group was to occur, leaving only the participants, the focus group leader and co-leader, and the notetaker in this room. Each focus group was then implemented, beginning with an “icebreaker” activity and introductions for the purpose of facilitating comfort among participants, and then continuing with discussion of questions taken from the *Focus Group Questioning Route*. Focus groups were implemented in accordance with standard focus group procedures, such as those described in Krueger (1988), but modified to take a more culturally sensitive approach. Each of the six focus groups were gender and racial/ethnic group concordant; that is, one focus group was conducted for each combination of gender and racial/ethnic group (e.g., one focus group consisted of African American female children, one focus group consisted of Hispanic male children). In order to be culturally sensitive and promote comfort, each leader, co-leader, and notetaker matched the gender and race/ethnicity of that focus group’s participants. Additionally, each Hispanic focus group was moderated by a leader and a co-leader who were Spanish-English bilingual.

Participants were engaged in discussion for approximately one to one and a half hours. Each focus group was audiotaped and videotaped, as explained in the Parental/Guardian Consent Form. Focus group participants were each paid \$15 in cash immediately following the focus group and thanked for their participation. Each participant was also asked to sign a payment receipt for the purpose of verifying that she/he had indeed been paid \$15 for participating in the focus group discussion.

Qualitative Data Analysis

Digital audio recordings of the focus groups were transcribed verbatim by a certified transcription company. Transcribers were asked to record all slang, slips of the tongue, and audible behaviors such as laughter, and to distinguish the voices of the focus group leaders and co-leaders from those of the focus group participants. Focus group leaders were asked to recommend, but not require, that participants say either their first name or a fictitious name before speaking so that participants could be differentiated from each other during the transcription and data analysis processes. The decision to only recommend, but not require, this name provision was made to facilitate spontaneous responding and to increase the comfort level of the children who, for the most part, were unfamiliar with each other. This name provision was also not required because frequency of discussion of a particular factor within each focus group (i.e., the number of participants within a focus group who reported a particular factor) was not used as a method of data analysis. Instead, analysis occurred across focus groups (e.g., “factor X was mentioned in focus groups A, B, and C”). This method of analysis was chosen based on the view that responses that are given in more than one focus group are likely to be more reliable motivators and barriers than responses that are given by several persons within a single focus group. Additionally, analysis at the focus group level is useful for determining if there are differences in reported motivators of and barriers to healthy eating behaviors in association with race/ethnicity and/or gender.

Focus group transcripts were analyzed by a team of eight researchers (i.e., “coders”) from diverse cultural backgrounds. Each focus group transcript was coded by a two-member coding team that included at least one coder whose race/ethnicity matched the race/ethnicity of the particular focus group’s participants. Additionally, each transcript from a focus group with Hispanic participants was coded by at least one coder who is Hispanic and Spanish-English

bilingual. The purpose of these procedures was to facilitate comprehension of the participants' dialect and word usage during the transcription coding process. In order to increase the reliability and validity of transcript coding, coders were rotated so that coding teams did not always consist of the same two coders. The author of this document served as the "coding analyst," the person responsible for closely supervising the coding process to enhance internal consistency of coding between transcripts (Kidd & Parshall, 2000).

All coders received training on the constant comparative method (Glaser & Strauss, 1967). Analysis (i.e., "coding") of each of the six focus group transcripts was informed by the constant comparative method (Glaser & Strauss, 1967). Specifically, "conventional content analysis" (Hsieh & Shannon, 2005) and "inductive category development" (Mayring, 2000) approaches were used for the purpose of deducing the codes directly from the data, as opposed to using a pre-existing theory to construct a coding scheme. Using an inductive approach to develop the codes based on the data, as opposed to using a pre-existing theory to preliminarily create a coding scheme and then make the data fit to that pre-developed coding scheme, is an approach that fit well with the culturally sensitive approach utilized in this study. Using an inductive versus deductive approach also avoids "forcing" the data to fit into pre-determined categories that were developed based on pre-existing theory resulting from research that may not have included low-income or racial/ethnic minority research participants.

To construct an initial coding scheme, coders read through segments of a randomly-selected transcript and agreed upon an initial list of categories (i.e., "codes") and subcategories (i.e., "sub-codes") to describe the participants' comments determined to be motivators of or barriers to healthy eating. Level of specificity of codes was determined on the basis of practicality. In other words, codes needed to be specific enough to capture information that could

be directly utilized in interventions or health promotion programs and in the later development of a proposed inventory to assess perceived levels of motivators of and barriers to health promoting behaviors.

Coding procedures used in the present research were largely consistent with the coding guidelines of Schilling (2006, p.33), which he describes as follows: “Starting with a theoretical discussion and explanation of the system, the researcher has to define main and (if necessary) subcategories as well as formulate anchor examples (prototypes) and coding rules.” Thus, as needed, sub-codes (analogous to Schilling’s “subcategories”) were also deduced from the data and added to the coding scheme and prototype examples. Coding guidelines were also specified.

Each unit of speech in each transcription that described or referred to any kind of motivator or barrier was considered an “instance.” Thus, a coded instance could be as short as a single word or as long as a participant’s entire uninterrupted comment (i.e., given that it covered a single topic/idea). All instances referring to motivators of or barriers to healthy eating were coded; conversely, comments by participants in reference to anything other than motivators of or barriers to healthy eating and comments by focus group leaders were not coded. Each instance was assigned a main code (e.g., social influence) or a main code as well as a more specific sub-code (e.g., parental influence) according to Schilling’s (2006) recommendations. Every coded instance was labeled as either a motivator or a barrier.

After the initial list of codes was developed, coders “constantly compared” participants’ comments to the coding list, in order to determine if each instance could be described using a code from the coding scheme. When instances did not fit within the scheme, an existing code was revised or a new code was developed to accurately describe or categorize the instance.

Subsequently, new codes and sub-codes were developed and added to the coding scheme only when a participant's comment did not fit under a code within the pre-existing coding scheme.

Specifically, the transcript coding process involved four major steps. First, each transcript was independently and privately coded by two coders. All coders used the same coding schema. Coders were encouraged to develop a new code if a participant's comment, determined to be a motivator or barrier related to healthy eating (i.e., an "instance"), did not fit any of the existing codes in the coding schema. Second, the two-member coding sub-team that coded a given transcript met with the coding analyst to review the transcript and compare codes. Each coded instance was discussed; if one coder's choice of code did not match that of the other coder for any given instance, then the instance was determined to be a discrepancy. Discrepancies were recorded and later used to calculate coding reliability. (Sub-codes were considered an artifact of the code and were not used in determining discrepancies.) Third, each coding discrepancy was discussed among the coding analyst and the two-member sub-team who coded the transcript. After the discussion, the coding analyst chose the most appropriate code based on the coders' explanations and on her experience with the code's previous usage in other transcripts. If consensus was reached that there was no appropriate code already in the coding scheme, a new code was added to the coding scheme. Although an effort was made to choose only one code per instance, on some occasions it was decided that two codes were necessary to capture the full meaning of the instance. In such cases, the instance was not recorded as a discrepancy.

In the fourth and final step, the coding analyst reviewed the codes and combined or deleted any that appear to be redundant or overly specific. Changes made based on alterations of the coding scheme as a whole (e.g., deleting, adding, or combining codes) were not considered discrepancies. Inter-coder reliability was calculated by dividing the total number of coder

agreements across all coded transcripts by the total number of coded instances (i.e., the sum of total coder agreements and total coder discrepancies across all coded transcripts). The result of this calculation was then multiplied by 100 to convert it to a percentage. Thus, the formula was $(\text{agreements} / [\text{agreements} + \text{discrepancies}]) \times 100$. Across the six focus group transcripts, a total of 857 coded instances were recorded, 108 of which were recorded as discrepancies between coders. Using the described formula, the inter-coder reliability was 0.89.

Table 3-1. Descriptive statistics of demographic variables

Variable		N	%
Age	9	8	21.6
	10	6	16.2
	11	12	32.4
	12	11	29.7
Gender	Female	17	45.9
	Male	20	54.1
Race/Ethnicity	African American	11	29.7
	White American	11	29.7
	Hispanic	15	40.5

CHAPTER 4 RESULTS

This section is divided into the following sections: (a) findings from the two health information questions on the *Demographic and Health Information Data Questionnaire* (DHIDQ), (b) a description of the organization of the analyzed focus group data, (c) a description of the motivators of and barriers to healthy eating as identified by the child focus groups, and (d) a description of the motivators of and barriers to eating whole-grain foods as identified by the child focus groups.

Findings from the Health Information Questions on the DHIDQ

The health information section of the DHIDQ consisted of only the following two questions: (a) “Are you on a special diet because of a health condition such as diabetes or hypertension?” and (b) “Are you trying to lose weight?”. Responses to these questions revealed that none of the participants reported being on a special diet because of a health condition. However, thirty percent (30%) of the participants reported that they were trying to lose weight.

Organization of the Analyzed Focus Group Data

Findings from the focus group data analysis are presented by code/theme (e.g., social influence, taste, availability, and weight concerns) and are ordered based on the frequency a given code. Sub-codes (e.g., “parental influence” is a sub-code of “social influence” and “adding flavor” is a sub-code of “taste”), which were sometimes assigned to reported motivators or barriers for the purpose of further description/specification, are placed in bold within the text.

During the analysis process, each factor reported to influence healthy eating behaviors was labeled either “motivator” or “barrier.” Some of the factors that were reported to influence healthy eating were discussed across focus groups either exclusively as a motivator (e.g., “weight concerns” was discussed exclusively as a motivator for eating healthy, never as a barrier) or

exclusively as a barrier (e.g., “cost” was referred to exclusively as a barrier for eating healthy, never as a motivator). However, other factors were referred to as motivators in some instances and as barriers in other instances (e.g., taste was discussed across groups both as a motivator for eating healthy and as a barrier to eating healthy).

The findings related to the reported motivators of and barriers to “eating healthy foods and snacks that are lower in fat and calories” are combined with the findings related to the reported motivators of and barriers to “eating fruits and vegetables,” except for where noted. Findings for these two topics were combined because of the great overlap between them—overlap likely due to the fact that the more general topic (i.e., eating healthy foods and snacks that are lower in fat and calories) partially encompasses the more specific topic (i.e., eating fruits and vegetables). However, there were some instances in which motivators and barriers were identified only in relation to “eating fruits and vegetables,” and thus are noted to be the case.

It is also noteworthy that findings from the focus groups are presented in order from most commonly reported to least commonly reported among the six focus groups. The degree of “commonness” of a motivator or barrier was determined by the number of groups in which it was reported (i.e., not by the number of times it was reported by individual participants). Thus the greatest degree of “commonness” of a motivator or barrier is indicated by its mention in “six out of six groups” and the lowest degree of “commonness” of a motivator or barrier is indicated by its mention in “one out of six groups.”

Additionally, example quotes in which a particular motivator or barrier was reported are presented to further describe the findings. The gender and race/ethnicity of the child that stated each quote is also presented. Abbreviations are used to denote African American (AA), Hispanic American (HA), and non-Hispanic White American (WA). Quotes are included strictly for

illustrative and descriptive purposes and are not meant to be representative of a particular finding or a summary of the beliefs of a particular group. Findings are specific to a particular gender and/or race/ethnicity only where noted.

Finally, it is important to note that reported motivators of and barriers to eating whole grains are presented separately after the findings for the motivators of and barriers to the other healthy eating behaviors (i.e., eating healthy foods and snacks that are lower in fat and calories, and eating fruits and vegetables). This is the case because only four of the six focus groups specifically discussed motivators of and barriers to eating whole-grain foods. Specifically, motivators of and barriers to eating whole grains were not discussed among the Hispanic male focus group or the non-Hispanic White American female focus group. Thus, there were fewer responses overall in relation to this topic. In the Hispanic male focus group, children discussed what kind of bread they typically ate but did not discuss why they ate that kind of bread. Additionally, it was clear that some of the participants did not know if foods (e.g., bread) that they were describing were whole-grain foods, thus preventing them from discussing the motivators of and barriers to eating whole-grain foods.

Participants of the non-Hispanic White American female focus group were asked, in a single question, about their motivators of and barriers to eating “fruits, vegetables, and whole grains.” Inquiring about whole grains in the same question as fruits and vegetables appeared to be detrimental to eliciting responses about motivators of and barriers to eating whole grains because (a) participant responses focused mainly on fruits and vegetables, as opposed to whole grains, or (b) participants gave general responses that were ambiguous as to whether or not they were referring to whole grains. Additionally, it was clear that some participants did not know what whole grains were, in that they thought that oranges and bananas were whole-grain foods.

Although confusion in relation to whole-grain foods was apparent to some degree among nearly every focus group, participants in the other four focus groups still reported some specific motivators of or barriers to eating whole-grain foods (e.g., the taste of these foods). Thus, participant responses about the motivators of and barriers to eating whole-grain foods from the other four focus groups were analyzed, while the few responses about whole-grain foods from the Hispanic male focus group and the non-Hispanic White American female focus group were deemed unable to be analyzed or inappropriate for analysis because the responses did not specifically describe motivators of or barriers to eating whole grains.

Motivators of and Barriers to Eating Healthy Foods

A number of motivators of and barriers to eating healthy foods were discussed among the children. These motivators and barriers are described below in descending order of prevalence across focus groups. In other words, the factors that were reported among all six focus groups are presented first, and factors that were reported within only one of six focus groups are reported last.

Motivators of Eating Healthy Foods Reported among All Six Focus Groups

Social influence (motivator). Social influence was reported as a motivator of eating healthy foods across all six children's focus groups. Social influence was also reported as a motivator specifically in relation to eating fruits and vegetables among five of six focus groups. Parents were the most frequently reported source of social influence; some type of **parental influence** was reported across all six focus groups. Parental influence for eating fruits and vegetables was most often described in terms of an ultimatum. An example of a parental ultimatum is conveyed in the following quote:

My mom says, "Eat your vegetables or else..." (HA male child)

Another type of social influence reported as a motivator for eating healthy foods was **influence from non-parental family members** (e.g., support from a brother). One male child even mentioned eating fruits and vegetables to impress **the opposite sex**. A few comments were made in relation to **indirect social influences** for eating healthy, such as “people making fun of you if you’re fat.” A different type of familial influence, **the effects of a family member having a health condition** that requires that family member to eat healthy, was evidenced through this quote:

Sometimes we might eat them (vegetables), like since my daddy’s on a diet ‘cause he has to lose his stomach, and so he’s eating healthy. We’re eating bread but it’s not the same kind of bread that we [normally] eat. It’s like a different kind...And so he has to eat a lot of vegetables, because if he doesn’t lose his stomach, the doctor said that he might end up dying, and so that’s why I’m getting on him about his diet. (AA female child)

Taste (motivator). Not surprisingly, how a food tastes was one of the influential factors that was discussed with greatest frequency. Taste was discussed within the focus groups both as a motivator of and as a barrier to eating healthy foods. Taste was discussed as a motivator of eating healthy foods within all six focus groups. Taste was discussed as a motivator specifically for eating fruits and vegetables among five of six focus groups. Example quotes illustrating taste as a motivator of eating healthy foods are presented below:

I love bean burritos ... yeah, they are yummy. (HA female child)

They [healthy foods] taste good. (WA male child)

I like carrots, avocado, broccoli ... I like the ones that are like broccoli but they are white. (HA male child)

Some children even reported preferring the taste of healthy foods to sugary foods:

If I had a choice between the sugar and the healthy snacks, I’d have the healthy snacks. (AA male child)

...Because it [healthy food] tastes better than some sweets... (HA female child)

It [a banana] tastes better [than a candy bar]. (WA male child)

In reference to fruits and vegetables, children reported liking the taste of fruits more commonly than they reported liking the taste of vegetables. Some children clarified that their reason for liking the taste of fruits is due to the fruits' **sweetness**:

I like to eat fruits because, like, it's really better than eating candy. (AA female child)

It [mango] is sweet, and I like it. (HA male child)

Although a preference for sweet foods was discussed with great frequency, there were only few comments made in reference to liking the **sourness** of foods. Interestingly, each of the comments about liking the taste of sour foods was from Hispanic children, and each was in relation to fruits. In addition to simply liking or disliking the taste of certain healthy foods, other influential taste-related motivators and/or barriers to factors influencing eating healthy foods had to do with the following: (a) **the addition of something** (e.g., salt) to increase flavor (a motivator) and (b) **the way a food is cooked/prepared** (a motivator or barrier). Interestingly, only Hispanic children mentioned eating fruit with something added as a motivator for eating fruits and vegetables:

It [mango] tastes good with salt. (HA male child)

I [would] rather eat a sour green apple with lemon and salt on it, because it make it even sourer. (HA female child)

The way a food is cooked or prepared was reported as either a motivator or a barrier for eating healthy foods:

I only like certain people's baked chicken because sometimes it be dry. (AA female child)

When my mom makes salads, it is like the entire world has become perfect because my mom makes the best salads... (HA male child)

Issues of availability (motivator). Availability of healthy foods was reported as a motivator for eating healthy foods across all six focus groups. Among two groups, availability of

healthy foods as a motivator was discussed specifically in reference to having them available **as the only option**. Availability of fruits and vegetables was reported as a motivator in four of six groups. Children most often discussed availability of healthy foods in relation to having these foods accessible **at home**; however, availability as a motivator for consuming healthy foods was also identified in relation to **school, restaurants, and social events**:

More of that [healthy] stuff around your house ... [would help me eat healthy foods]. (WA male child)

[Having] enough of them [fruits and vegetables] on the table would encourage me. (AA male child)

Motivators of and Barriers to Eating Healthy Foods Reported among Five of Six Groups

Taste (barrier). Taste was discussed as a barrier to eating healthy foods among five of six focus groups. The only group that did not discuss taste as a barrier to eating healthy foods was the Hispanic male focus group. Four of six focus groups reported taste as a barrier specifically in reference to eating fruits and vegetables. Among those four groups, disliking the taste of vegetables was discussed in three of the focus groups. Disliking the taste of fruits was discussed in two of the focus groups. Taste was discussed as a barrier either in relation to **not liking the taste of healthy foods** or in relation to **preferring the taste of unhealthy foods**:

I'm not going to say I like a lot of that [unhealthy stuff], but like fried foods are really, really good... (AA female child)

I don't really like salad that much. (WA male child)

Responses by some participants specified that it is their desire or **preference for sweetness** (e.g., having a "sweet tooth") that makes them choose unhealthy foods. One participant described this as:

The reason why I think I like it [unhealthy foods] is 'cuz the ones that are not that healthy taste good ... are sweet. (AA male child)

In one case, the dislike of healthy foods was described as a broad generalization or **negative association with healthy foods**:

Healthy foods are nasty ... except for corn. (AA male child)

Weight concerns (motivator). Allusions to body weight, or concerns about one's weight, were mentioned as motivators of healthy eating among nearly all (five of six) children's focus groups. The only focus group in which weight issues were not mentioned was the African American male focus group. When focus group leaders asked specifically about eating fruits and vegetables, issues of weight were reported among three of six children's focus groups. Examples of weight-related issues mentioned as motivators for eating healthy foods and snacks are as follows:

Salt ... salt is fattening, so sometimes I don't put any on. (HA female child)

You can eat a whole bunch of them [healthy foods] and not get bigger. (WA male child)

Of particular interest is that a few children who mentioned weight issues as a motivator for eating fruits and vegetables connected the idea of gaining too much weight with the prospect of serious negative consequences, including dying.

When you get bigger and bigger and bigger, you could have more chance of a heart attack. (WA female child)

I heard on the news that someone died because they were too fat... (HA male child)

I think it [eating healthy foods] is important, because when you're too big, like overweight ... you can faint. (AA female child)

Some of the children discussed weight in relation to **wanting to maintain their weight** (i.e., not wanting to "become fat"), while others discussed **wanting to lose weight**:

[I eat fruits and vegetables] so I won't be fat, and so I will be skinny but not too skinny. (HA male child)

[I eat fruits and vegetables] to get into a shirt that is a little smaller than I am... (HA male child)

Motivators of and Barriers to Eating Healthy Foods Reported among Four of Six Groups

Issues of availability (barrier). Just as the availability of healthy foods was cited as a motivator, the vast availability of unhealthy foods was cited as a barrier. The **prevalence of unhealthy foods** was discussed as a barrier to choosing the healthier foods among four of six focus groups. This barrier was mentioned in reference to **home, school, social events, and food provided by others** (such as a friend's family):

Like tonight, if I go to a party, I'm probably going to get 5,000 things of cotton candy and popcorn, which I'm not supposed to have... (WA female child)

Additionally, three of six groups reported the **lack of availability** of fruits and vegetables at home as a barrier for consuming them. Interestingly, neither of the Hispanic American children's focus groups was among the groups reporting a lack of availability of fruits and vegetables.

Within each of the three focus groups that mentioned the lack of availability of fruits and vegetables, at least one child reported the more specific barrier of fruits and/or vegetables being eaten quickly once those foods are bought and there "not being any left":

We got them, but by the time the next day, they be gone. (AA male child)

Desire to be healthy (motivator). Children may be more interested in the idea of being healthy than one might think. The simple desire to be healthy was one of the most commonly reported motivators to eating healthy foods. Among four of the six children's focus groups, there was mention of eating healthy foods and snacks in order to be healthy or to have a healthy body. The "desire to be healthy" was also reported in specific reference to fruits and vegetables among the same number of groups. Illustrative quotes are as follows:

[I eat fruits and vegetables] so I can be healthier and stronger. (HA male child)

The reason I eat fruits and vegetables is because you can have a healthy body, and your bones will be very strong, and you won't have to worry about being all weak and lazy. (AA female child)

Motivators of and Barriers to Eating Healthy Foods Reported among Three of Six Groups

Issues of familiarity (barrier). Being more familiar with unhealthy foods or less familiar with healthy foods was discussed as a barrier to eating healthy foods among three of six focus groups. Children described this familiarity as being “used to” or “not used to” or even “attached to” certain foods or certain types of foods:

Like, our body isn't used to that healthy stuff, and so when we first eat it it's like nasty, so we've got to like take some time and get used to it. And sometimes I don't get used to food ... (AA female child)

Issues of variety (motivator/barrier). As opposed to desiring the foods that they are familiar with, some children described a lack of variety as a barrier to eating healthy foods. For instance, among three of six focus groups, children reported that being “bored of” or “tired of” fruits and vegetables prevented them from eating more of these foods:

You get tired of eating the same thing all the time every day. (HA female child)

It appears that although children may be reluctant to try new healthy foods, they may also eat fewer healthy foods, such as fruits and vegetables, simply because they experience a lack of variety of these foods and thus find them unappealing. Factors of familiarity and variety were not only discussed as barriers to eating healthy foods; these factors were also cited among three groups as motivators for eating healthy foods. For example, one child stated that she eats healthy foods because those are the type of foods she is used to, and others stated that they might try a new healthy food because of the desire to have something different (i.e., more variety). Thus, it appears that familiarity and the desire for variety can work both ways—either as motivators for or as barriers to eating healthy foods.

Physical activity (motivator). Of particular interest is the link made by some children between eating healthy foods and engaging in physical activity, such as the notion that eating healthy foods will help one to be active or that eating unhealthy foods will prevent one from

being active (e.g., becoming nauseous while exercising after eating something unhealthy).

Physical activity was discussed as a motivator for eating healthy foods or fruits and vegetables

among three of six groups, with comments such as the following:

You can't be not healthy, 'cause you're going to be doing a lot of running and jumping and stuff like that. And if you do that and you're not healthy you can just like faint. (AA female child)

I eat it so I can get skinny, so I can run more, and so I can do exercise. (HA male child)

Desire to eat / Cravings for junk food (barrier). Children among three of six focus groups described a strong desire or “craving” for junk food or sweets as a barrier to eating healthy foods. In other words, this factor was less about children not liking or not wanting healthy foods and more about them simply desiring junk foods:

... Especially at kids' age, you just want junk food for breakfast, lunch and dinner ... (WA female child)

... How can you give it up? I can't stand it. One day without candy? I've got to sneak something in my life, and that's junk food. (WA female child)

Motivators of Eating Healthy Foods Reported among Two of Six Groups

Vegetarianism (motivator). Interestingly, two children—one in the Hispanic male focus group and one in the non-Hispanic White American female focus group—reported that their being vegetarian motivates them to eat healthy foods.

Immediate effects (motivator). Among two of the three female focus groups, the immediate effects of eating healthy or unhealthy foods were mentioned as motivators to eating healthy foods. The comments either focused on the immediate positive effects of eating healthy foods (e.g., feeling strong, good, or energetic afterward) or the negative effects of eating unhealthy foods (e.g., getting a “sugar rush” and being hyper after eating too much candy).

Awareness/thinking of the consequences (motivator). Among two of three female groups, thinking about the consequences of eating unhealthy foods was mentioned as a motivator for eating healthy foods, such as indicated in the following quote:

I mean ... I like fat sometimes, but just sometimes I think, what am I doing to myself ...
(HA female child)

Motivators and Barriers to Eating Healthy Foods Reported among One of Six Groups

Gastrointestinal effects (motivator). As a motivator for eating healthy foods, one African American female child described that healthy foods make her stomach feel better than do unhealthy foods:

I mean, if I eat chicken, I'm going to have to go to the bathroom, but when I eat healthy snacks, I feel real good and I don't have to go to the bathroom. My stomach don't start hurting. I don't feel overloaded. I don't feel like I have a lot of fat in my stomach.

Desire to feel satisfied (motivator/barrier). As a motivator for eating healthy foods instead of sweets, at least one Hispanic female child mentioned that healthy foods make her feel more satisfied (i.e. not hungry):

Sweets just make you want to have more sweets, it makes you more hungry, and healthy food fills you up, so you won't eat more.

Alternatively, a child from the non-Hispanic White American male focus group expressed the opposite perspective as a barrier, by stating that a salad, for instance, is "not really a meal."

Personal health condition (motivator). A child in the African American female focus group shared that she has low iron and that this serves as a motivator for her to eat fruits and vegetables. Following is a comment that reflects this finding:

Because, I used to have to take pills for iron but now I don't because like, it was something I was missing, I guess. It was some kind of vegetables or food that I wasn't eating like I was supposed to be eating ...

Monetary incentives (motivator). At least one child in the non-Hispanic White American male focus group cited money as a hypothetical motivator for eating fruits and

vegetables. In other words, he stated that he would be more likely to eat fruits and vegetables if he was given a monetary reward to do so.

Not seeing/feeling improvements (barrier). A child from the non-Hispanic White American male focus group suggested that not seeing or feeling improvements from eating healthy foods was a barrier to wanting to eat them.

Everybody says that they're really good for you, but you never really see an improvement. Like when you eat 'em, you never really see any changes or like feel any changes. So, it seems kinda worthless to just eat stuff that doesn't really taste as good and then you don't really see like any improvements and don't feel any different.

Cost (Barrier). At least one child from the African American female group showed an awareness of cost as a barrier to eating fruits and vegetables, as indicated in the following quote:

But fruit is so high sometimes. Got to get a good price when you buy fruits.

Appearance of foods (barrier). The desirable appearance of unhealthy foods, such as cake, was mentioned by a Hispanic female child as a barrier for eating healthy foods.

Indirectly Assessed Motivators of and Barriers to Eating Healthy Foods

Though the following two influence variables were not explicitly reported as motivators or barriers by the child focus group participants, these factors were included in the discussions with frequency and thus appeared important to include as part of the findings of this research.

Media influence. Among at least three of the six children's focus groups, media was mentioned within the discussion, though not necessarily as a motivator or as a barrier. However, these comments involving media suggest that children make mental associations between healthy or unhealthy foods and the media, possibly as a source of either accurate or inaccurate information. Example comments follow:

'Cause I was watching this show, and if you eat a lot of fried foods you'll get bigger and bigger and it will make you feel lazy like you don't want to do nothing ... (AA female child)

On the news, it said that dark chocolate is better for you than broccoli. (HA female child)

Knowledge. Although knowledge was rarely explicitly referred to as either a motivator or a barrier among the children's focus groups, issues of knowledge were frequently indirectly discussed, sometimes in the form of informative statements such as the following statements:

Like the popcorn that doesn't have the salt on it, that's better [for you]. (AA male child)

Although the children seemed to evidence accurate general knowledge about healthy and unhealthy foods overall, they clearly also exhibited gaps of knowledge and unanswered questions. There was even debate in one group as to whether or not carrots are "good for you."

Some of the most striking questions included:

Does bacon count as healthy?

Does baking a chicken mean like sticking it in the oven?

Is it true if you eat like too many bananas and potassium you could get like sick?

Aren't raisins good for you?

Motivators of and Barriers to Eating Whole-Grain Foods

Again, the findings related to whole-grain foods are reported separately since motivators of and barriers to eating whole grains were not explicitly discussed among two of the six focus groups (i.e., the Hispanic male focus group and the non-Hispanic White American female focus group). Reported motivators of and barriers to eating whole-grain foods are listed in order from most common (i.e., reported by four focus groups) to least common (i.e., reported by one focus group).

Reported among All Four Groups

Taste (motivator). It is surprising that taste was reported as a motivator for eating whole-grain foods among all four children's focus groups that discussed whole grains.

Following are example comments regarding this finding:

It tastes like regular bread. (AA male child)

It [brown rice] doesn't taste any different than regular rice. (WA male child)

Some of them [whole-grain foods] actually do taste good ... (HA female child)

The reason why I eat whole grains is because they're tasty and just ... it's not like the regular, but it's still good. (AA female child)

Reported among Three of Four Groups

Taste (barrier). Among the four focus groups that discussed eating whole grains, three of the groups reported taste as a barrier to eating whole-grain foods. Participants reported taste as a barrier either in relation to not liking the taste of whole-grain products or in relation to preferring the taste of products not comprised of whole grains. Some comments from these participants that substantiate this finding are as follows:

I think of an example of like nasty stuff is like wheat croutons, because they're all nasty, and they don't taste good at all. (WA male child)

It [whole-grain food] doesn't really taste that good ... (HA female child)

Issues of availability (motivator). Availability was mentioned as a motivator to eating whole-grain foods among three of the four focus groups that discussed whole grains. It was reported that having whole-grain foods more available would encourage children to eat these foods. Example comments from this discussion of whole grains are as follows:

I'd try it [brown rice] if it was around

My dad always gets them [whole-grain foods] ... they're always around my house, so I eat them. (WA male child)

Issues of knowledge (barrier). The lack of knowledge related to knowing whether or not a food is a whole-grain food was reported as a barrier to eating whole grains among three of four groups. Example comments from these focus groups are as follows:

Sometimes I don't know what is in my food ... (HA female child)

I've heard of dirty rice, I haven't heard of brown rice. (AA male child)

Reported among Two of Four Groups

Issues of availability (barrier). The lack of availability of whole grains, or similarly, the availability of non-whole grain alternatives, was reported as a barrier to eating whole grains among two of the four focus groups that discussed whole grains. Example comments from these focus groups are as follows:

Because I don't have them ... (WA male child)

Sometimes I don't [eat whole grains], because I have a kind of chocolate cereal, and I sometimes eat that ... (HA female child)

Social influence (motivator). Influence from parents, both in relation to parents buying whole-grain foods and in relation to being influenced by **parental preference**, was reported among two of the four focus groups in which eating whole-grain foods was discussed. An example comment is as follows:

I don't have to ask my mom because she would put whole grain in my food, because she wants me to be healthy. (HA female child)

Reported in One of Four Groups

Issues of knowledge (motivator). Among the Hispanic female group, obtaining knowledge related to being able to identify whole-grain foods was reported as a motivator for eating whole grains. The members of this group even discussed two methods of finding out what is in one's food: (a) reading labels and (b) asking one's parents. Example related comments from this group are as follows:

I usually always ask my parents, "Is this whole-grain? Is this? That?" (HA female child)

Sometimes I read the labels. (HA female child)

Self-esteem/being proud (motivator). Additionally, among the Hispanic female group only, feeling proud of oneself for eating whole grains was reported as a motivator for eating these foods.

Weight concerns (motivator). Weight concerns as a motivator specifically in reference to eating whole grains was mentioned among only one of four groups--the Hispanic female group. An example comment is as follows:

I don't want to be fat. (HA female child)

Immediate effects (motivator). Among the non-Hispanic White American male group, positive immediate effects (e.g., feeling energetic after eating whole grains) were mentioned as a motivator to eating whole grains.

Issues of variety (barrier). Among the non-Hispanic White American male group, a lack of variety was reported as a barrier to eating whole grains. An example comment is as follows:

You get bored of eating whole grains. (WA male child)

Appearance of food (barrier). Among the non-Hispanic White American male group, the appearance of whole-grain foods was reported as a barrier to eating them, both in relation to the appearance of the actual food and in relation to the appearance of the packaging of whole-grain foods. Below are some related comments from this focus group discussion:

... They're really not that good-looking, so I don't really want to try it, because it doesn't look appetizing. (WA male child)

Like Raisin Bran, it doesn't have like that cool-looking box or anything like that ... (WA male child)

Distraction/priorities (barrier). Among the White American male group, simply having other priorities was cited as a barrier to eating whole-grain foods. Specifically, reported priorities were sleeping and playing video games. In other words, thinking about eating whole grains was considered to be less important than other, likely more enjoyable, activities.

CHAPTER 5 DISCUSSION

The purpose of this research was to use focus groups to identify perceived motivators of and barriers to engaging in healthy eating behaviors among African American, Hispanic, and non-Hispanic White children from families with low household incomes. The specific healthy eating behaviors that were the focus of this research included (a) eating healthy food and snacks that are lower in fat and calories and (b) eating fruits, vegetables, and whole grains. Additionally, this research examined if there were differences among the identified motivators of and barriers to healthy eating in association with gender and/or race/ethnicity. This chapter includes the following: (a) a summary of the findings of this study, (b) interpretations of the findings of this study, (c) limitations of this study, (d) implications for future research and application, and (e) conclusions of this study.

Summary of Findings

The first research question asked about the perceived motivators of and barriers to healthy eating behaviors among African American, Hispanic, and non-Hispanic White American children from families with low household incomes. A number of motivators of and barriers to healthy eating behaviors (i.e., eating foods and snacks that are low in fat and calories, eating fruits, vegetables, and whole-grain foods) were identified by the six focus groups in this study, which varied in regard to their gender and race/ethnicity composition. The identified motivators and barriers were common across these six focus groups to differing degrees (i.e., were identified by all six focus groups to were identified by only one focus group).

Most Commonly Reported Motivators of and Barriers to Healthy Eating

The most commonly reported motivators of healthy eating (i.e., reported among at least four of the six focus groups) included (a) social influence, (b) taste, (c) availability of healthy

foods, (d) weight concerns, and (e) the desire to be healthy. Specifically, parental influence was the most commonly reported type of social influence, and this influence was often described in terms of an ultimatum given by parents in reference to eating healthy foods such as vegetables. Surprisingly, influence from peers or from teachers was rarely or not at all discussed among the participating children.

Liking the taste of certain healthy foods was discussed often, especially in relation to fruit. Specifically, some children reported that they liked healthy foods when a flavor enhancer such as salt was added or when the food was cooked or prepared in a certain way. Issues related to the availability of healthy foods were discussed as motivators, most commonly in reference to the availability of these foods in the home, but also in reference to having healthy foods available at school, restaurants, and social events. Most surprising is the finding that weight concerns (e.g., whether or not a food is fattening or the desire to prevent gaining too much weight) was one of the motivators of healthy eating most commonly mentioned among the children's focus groups. Finally, the desire to be healthy was also commonly reported as a motivator of eating healthy foods.

The most commonly reported barriers to healthy eating (i.e., reported among at least four of six focus groups) included (a) taste and (b) issues of availability. Taste was discussed as a barrier either in relation to not liking the taste of healthy foods (e.g., vegetables) or in relation to preferring the taste of unhealthy foods (e.g., sweets). Additionally, the prevalence of unhealthy foods as well as the lack of availability of healthy foods (e.g., at home, school, social events) were issues of availability reported among children as barriers to healthy eating.

Other Reported Motivators of and Barriers to Healthy Eating

Motivators and barriers influencing healthy eating behaviors that were reported among three of six focus groups included (a) issues of familiarity (barrier), (b) issues of variety

(motivator/barrier), (c) physical activity (motivator), and (d) desire to eat/cravings for junk food (barrier). Issues of familiarity and variety included instances in which children described being “used to” certain foods as either a motivator of or as a barrier to eating healthy foods, as well as instances in which children described being bored with healthy foods (a barrier), or wanting to try new healthy foods for the sake of variety (a motivator). Interestingly, a connection was made between engaging in physical activity and eating healthy; children perceived eating healthy foods as an aid to engaging in physical activity and eating unhealthy foods as potentially impeding their engagement in physical activity. Finally, children reported that the sheer desire for or even the “craving” of certain unhealthy foods prevents them from eating healthy foods.

Motivators and barriers influencing healthy eating behaviors that were reported among two of six focus groups included (a) vegetarianism (motivator), (b) immediate effects of healthy/unhealthy eating (motivator), (c) awareness/thinking of consequences of healthy/unhealthy eating (motivator), and (d) appearance of foods or food packaging (barrier). Motivators/barriers influencing healthy eating behaviors that were reported among only one of the six focus groups included (a) gastrointestinal effects (e.g., of unhealthy foods) (motivator), (b) the desire to feel satisfied (motivator/barrier), (c) a health condition (motivator), (d) monetary incentives (motivator), (e) not seeing/feeling improvements (barrier), (f) cost (barrier), (g) feeling proud of oneself (motivator), and (h) distractions/priorities (barrier). Notable topics discussed in the focus groups in relation to healthy eating but that were not specifically reported as motivators or barriers included (a) media influence on eating behavior and (b) issues of knowledge or lack of knowledge regarding healthy eating.

Differences in Association with Gender or Race/Ethnicity

The second research question asked whether there were any differences in perceived motivators of and barriers to healthy eating behaviors in association with gender or

race/ethnicity. Few differences were found among the reported motivators and barriers in association with gender or race/ethnicity. In a few instances, a difference was manifested when one group failed to report a certain influential factor that was mentioned by all other groups. Specifically, the only focus group out of six focus groups in which taste was not discussed as a barrier was the Hispanic male focus group, and the only focus group out of six focus groups in which weight concerns was not discussed as a motivator was the African American male focus group. Additionally, neither the Hispanic male focus group nor the Hispanic female focus group discussed a lack of availability of fruits and vegetables as a barrier. The only found differences in the identified motivators/barriers in association with gender were indicated by the fact that the two following motivators of healthy eating were identified by two of three female focus groups but not by any of the male focus groups: (a) the immediate effects that a food brings (e.g., feeling energetic after eating it) and (b) being aware of or thinking about the consequences of eating certain healthy/unhealthy foods.

Interpretations of Findings

A number of motivators of and barriers to healthy eating were revealed by data from the children in the six focus groups conducted in the present study. Some of the revealed motivators and barriers are similar to those reported in previous qualitative and quantitative studies examining motivators of and barriers to healthy eating among children, including the following:

- (a) issues of availability/accessibility (Corwin et al., 1999; Cullen et al., 2001; McKinley et al., 2005; Sheppard et al., 2006; Brug, Tak, Velde, Bere, & Bourdeaudhuij, 2008)
- (b) media influence (Signorielli & Staples, 1997; Hesketh et al., 2005; Stevenson et al., 2007)
- (c) social influence of family and of peers (Corwin et al., 1999; Cullen et al., 2000; Blanchette & Brug, 2005; Sheppard et al., 2006; Brug et al., 2008)
- (d) taste (Blanchette & Brug, 2005; Bruss et al., 2005; McKinley et al., 2005; Brug et al., 2008)

- (e) weight concerns (McKinley et al., 2005; Sheppard et al., 2006).

However, some of the specific motivators of and barriers to healthy eating that were found in the present study are novel. For instance, in the present study, influence from parents was discussed among focus groups more commonly than influence from peers. Previous research supports the importance of peer influence on children's eating behaviors (e.g., Woodward et al., 1996), and children in some of the focus groups of the present study did in fact discuss peers as sources of influence on their eating behaviors. However, across focus groups of the present study, parents were reported as influencing children's eating behaviors more often than were peers. This finding may be a manifestation of children being more aware of their parents' influences on their eating behaviors, given the recently increased attention to healthy family eating in the media.

Concern about weight or the potential for gaining weight due to unhealthy eating behaviors was another motivator that was mentioned across nearly every focus group in the present study, suggesting that children are either aware of the potential negative health consequences associated with gaining too much weight and/or are concerned because of issues related to physical appearance. Though some studies have found similar concerns among children about the effects of unhealthy eating on appearance or weight (McKinley et al., 2005; Sheppard et al., 2006), the prevalence (i.e., reported among five of six focus groups) of this motivator among the child focus groups in this study is particularly notable. Whether or not children understand what the potential health consequences of being overweight are, or how unhealthy eating can lead to being overweight, should be further examined.

Children also discussed physical activity as a motivator for healthy eating. Specifically, children discussed the following: (a) not eating unhealthy foods before being physically active due to fear of becoming nauseous and (b) being motivated to eat healthy foods so that they can

be healthy enough to engage in and excel in the physical activities that they enjoy. This finding suggests that motivating children to engage in enjoyable physical activities may also indirectly motivate children to engage in healthy eating behaviors.

The desire to eat a variety of foods and conversely, the desire to eat familiar foods, were also both reported among children as factors influencing their eating behaviors. These findings suggest that although children are typically more likely to choose foods with which they are familiar, children also get bored with eating the same foods (particularly the same healthy foods) repeatedly. Thus, it may be important to encourage families to provide children with a variety of fruits and vegetables by slowly introducing new types of fruits and vegetables into a child's diet and also by involving children in the selection of these new foods.

The desire for junk food/sweets is a particularly noteworthy barrier to healthy eating that was reported with high frequency among the child focus groups. This barrier is noteworthy because words such as "craving" and "addicted" were actually used by some of the participating children to describe the intensity of their desire for junk food/sweets. Though such descriptions may be simply social constructions, they are of particular interest in the context of recent research to investigate the potential addictive qualities of certain types of foods (Hodgkins, Cahill, Seraphine, Frost-Pineda, & Gold, 2004; Uher et al., 2005). Findings in the present study related to the desire for junk food/sweets suggest that there is a need to teach children how to cope with sugar "cravings" as well as a need to teach parents and teachers the importance of not reinforcing the idea that children are "addicted to" sweets.

Other interesting findings, though less commonly reported among the focus groups, include the finding that a reported motivator for eating healthy foods is experiencing immediate positive feelings (e.g., feeling energetic/strong) after eating healthy foods whereas a barrier to

eating healthy foods is not seeing or feeling a “difference” (e.g., not noticing any positive effects) after eating healthy foods. Children may expect to feel or look better after eating healthy—likely due to messages they have received related to this idea—and then either continue eating these foods or refrain from eating these foods as a result of whether or not such expectations are met.

Knowledge, lack of knowledge, and unanswered questions may be highly influential on the eating behaviors of the participating children. These children reported knowing or not knowing certain facts about healthy eating and questioned whether or not certain foods are healthy. Overall, it seemed as if the children in the present study had a basic understanding of healthy versus unhealthy foods; however, they also appeared to have multiple unanswered questions and to exhibit some notably incorrect knowledge or lack of knowledge regarding this subject.

In sum, it appears that African American, Hispanic, and non-Hispanic White American children from families with low incomes report a wide variety of environmental, sociocultural, educational, and psychological factors that motivate or prevent their engagement in healthy eating behaviors. It is interesting to note that there were minimal differences in reported motivators and barriers in association with gender or race/ethnicity. This finding could be interpreted in a number of ways. One interpretation is that there are, in fact, only minimal differences in children’s motivators of and barriers to healthy eating in association with gender or race/ethnicity. Alternatively, it may be the case that race/ethnicity and gender-based differences in some motivators of and barriers to healthy eating may exist but are less pronounced/explicit among children of this age. Additionally, low socioeconomic status may serve as an equalizer across racial/ethnic groups; that is, the motivators of and barriers to healthy

eating among children that are associated with socioeconomic status may mask race/ethnicity and gender related differences in these motivators and barriers.

Limitations

Findings from this study must be interpreted with caution due to several limitations of this study. One limitation is a smaller sample size than that which is typical in most quantitative studies. However, this limitation is common in focus group research and other types of qualitative research (LaPier & Scherer, 2001). Focus group research tends to elicit a trade-off of greater richness of data for greater limits on generalizability. However, given the paucity of focus group studies related to healthy eating that have been conducted with children, the sample size of the present study is satisfactory at minimum. Furthermore, the present study is important in spite of its small sample size given the paucity of focus group research conducted in the U.S. that examines motivators of and barriers to healthy eating among racial/ethnic minority children and children from families with low household incomes.

Another limitation of the present study is that the participant sample in the study may not be representative of African American, Hispanic, and/or non-Hispanic White American children from families with low household incomes. Furthermore, these participants all lived in a small-to-medium-size city in the Southeastern United States, where the motivators of and barriers to healthy eating behaviors may be different from those in other parts of the country and thus limited in generalizability.

Caution is also indicated with regard to the few differences found in association with gender and/or race/ethnicity due to the facts that (a) there were only two focus groups conducted per racial/ethnic group and (b) there was only one focus group conducted per gender within race/ethnicity (e.g., one African American female group). Despite these limitations, such findings may be useful for informing future research that quantitatively assesses motivators of

and barriers to healthy eating among a similar but larger sample of children like those in the present study. Another limitation of having conducted only one focus group per gender within race/ethnicity (e.g., one African American female group) is that differences in the number of participants per group, as well as differences in the level of engagement of group participants and their focus group leaders, likely affected the number and diversity of motivators and barriers that were reported in each focus group. Similarly, reported motivators and barriers were not analyzed based on the number of participants who stated each motivator/barrier; instead, commonness of motivators/barriers *across* focus groups was determined. This “commonness approach” was utilized based on the concept that factors reported in more than one focus group are likely to be more reliable than factors reported by several persons within a single focus group. Furthermore, not requiring each participant to state his/her name every time before speaking (which would have been necessary to analyze findings at the person-level of specificity) was based on the desire to promote a natural flow of conversation and to decrease the degree of self-consciousness among the participating children who were—for the most part—strangers to one another.

Some observed discomfort between the children in elementary school and those in middle school may have been a study limitation. This difference in grade level appeared to carry greater importance for the study participants than did differences in their age. Additionally, such grade-level differences may have impeded group participation by the elementary school children in focus groups that were comprised of both elementary and middle school children.

One of the most observable limitations of the present study is the fact that the topic of whole-grain foods was not discussed in two of the six focus groups. This occurrence appears to be due to (a) the topic of whole grains being originally grouped with fruits and vegetables (i.e., “fruits, vegetables, and whole grains”) in the *Focus Group Questioning Route* and (b) an

avoidance of a discussion of whole grains because of a lack of familiarity or knowledge about whole grains by the participants. Once this lack of attention to whole grains was noticed, the *Focus Group Questioning Route* was revised to make whole grains a separate discussion topic (i.e., separate from fruits and vegetables); however, some groups had already been conducted by this point.

An additional limitation of the present study is related to the training of focus group leaders. Although a structured two-hour training session was scheduled and conducted for focus group leaders and co-leaders, some of the leaders and co-leaders were unable to attend this session and thus were trained in small-group or individualized “make-up” training sessions. Due to these differential situations, it is likely that not all of the focus group leaders and co-leaders were trained equally—a situation that may have resulted in more or less sharing of motivators and barriers within some focus groups. Additionally, an occasional situation occurred in which a focus group leader and his/her co-leader did not meet until the day of the focus group, shortly before the event commenced. The degree of familiarity among focus group leaders and co-leaders could also have potentially influenced the degree to which the focus group flowed smoothly and the degree to which participants comfortably shared motivators and barriers.

Nevertheless, the diversity of participants and the richness of data generated in this qualitative focus group study render it a major contribution to the research literature on the influences of healthy eating behaviors among children. Specifically, the present study describes the most common themes reported by the participating children as motivating or preventing them from engaging in healthy eating behaviors. This study is also important because of its use of a culturally sensitive research approach and its inclusion of children from families with low household incomes.

Implications for Future Research and Application

Findings from the present study have several implications for future research. First, the limitations of the present study, namely the limitations related to sample size and generalizability, should be addressed by conducting future similar studies with larger samples of children in different areas of the United States. Comparing findings across such studies will further the understanding of the motivators of and barriers to healthy eating among culturally diverse children and will further clarify whether or not there are differences in the motivators of and barriers to healthy eating among children in association with gender, race/ethnicity, geographical location, and/or cultural background.

Additionally, the findings of the present qualitative study, as well as the findings of future similar studies, can be used to develop a pilot assessment instrument that quantitatively measures the levels of motivators of and barriers to healthy eating among children. The author currently is not aware of the existence of such a measure that examines both motivators of and barriers to healthy eating and that covers those that are environmental, sociocultural, educational, economic, and psychological in nature.

Finally, the present study may also be used to inform similar culturally sensitive focus group research with groups that have been historically left out of research, including low socioeconomic status individuals, racial/ethnic minority individuals, and children. The present study may also have implications for future research by serving as a model for conducting culturally sensitive qualitative data analyses. In the present study, the author ensured that the “coding team” that engaged in coding the focus group transcripts was not only culturally diverse but also that each transcript was analyzed by at least one coder who was of the same racial/ethnic background as the participants involved in that focus group. This step was taken to ensure that at

least one coder would likely understand any culture-specific language or culture-specific ideas that might have been conveyed in the focus group discussions.

Conclusion

This study used a focus group methodology to examine the perceived motivators of and barriers to healthy eating behaviors among African American, Hispanic, and non-Hispanic White American children (ages 9 to 12) from families with low household incomes. The present study also examined if there were differences in perceived motivators of and barriers to healthy eating behaviors in association with gender and/or race/ethnicity. Overall, findings from this study suggest that a number of environmental, sociocultural, educational, economic, and psychological variables motivate or prevent the engagement in healthy eating behaviors by culturally diverse children from families with low household incomes. The motivators of healthy eating most commonly reported across the participating children's focus groups included (a) social influence, (b) taste, (c) availability of healthy foods, (d) weight concerns, and (e) the desire to be healthy. The barriers to healthy eating most commonly reported across the participating children's focus groups included (a) taste and (b) issues of availability. A number of less commonly reported motivators and/or barriers were also reported by the participating children.

In general, findings from the present study suggest that the perceived motivators of and barriers to healthy eating behaviors are similar among male and female children, as well as among African American, Hispanic, and non-Hispanic White American children. The few possible gender and cultural differences in the motivators and barriers reported by the children in the focus groups in this study are discussed. Future research should further examine these findings with larger numbers of focus group participants and in different geographical locations (e.g., in rural areas of the U.S.). Such research should be culturally sensitive and be inclusive of

children from families with low household income as well as children from diverse cultural backgrounds.

Future research should also focus on developing an assessment tool that can be used with diverse groups of children to determine their perceived motivators of and barriers to engagement in healthy eating behaviors. Such an assessment tool would enable assessment-based intervention programs that are responsive to the factors that children identify as influencing their engagement in healthy eating behaviors. Interventions could additionally be customized to target motivators of and barriers to engaging in healthy eating among specific diverse groups of children in different areas of the country.

Perhaps the most important conclusion from the present study is that culturally diverse children can indeed identify motivators of and barriers to their engagement in healthy eating behaviors. Researchers and family members simply must empower them to provide this health promotion information. Indeed, it is children who are the “true experts” on what influences them to engage in healthy eating behaviors. Thus, interventions with the ultimate goals of reducing obesity and health disparities and promoting healthy eating behaviors among children ideally should include children as major intervention partners. Additionally, it is important that these intervention partners include children who are racial/ethnic minorities and/or are members of families with low household incomes.

APPENDIX A
DEMOGRAPHIC AND HEALTH INFORMATION DATA QUESTIONNAIRE

Family Health Self-Empowerment Project
Child and Teen Information Questionnaire

Directions: Please fill in the blanks and answer the questions in this questionnaire.
For questions that have bubbles (○), completely fill in the bubble beside the response
that you choose. Filled-in bubbles should look like this: ●

Please PRINT your name: _____

Please PRINT your address: _____

Home telephone: _____

Other telephone: _____

Do you consider yourself to be Hispanic/Latino?

- Yes
- No

What is your race? (Bubble-in all that apply)

(Note: Even if you consider yourself to be Hispanic/Latino, you may also consider yourself to be one or more of the following races.)

- American Indian or Alaska Native
- Asian American
- African American/Black
- Caucasian/White/European American
- Native Hawaiian or other Pacific Islander
- Other _____

Please write in your race if it is not listed



What is your sex?

- Female
- Male

What is your height? _____ feet and _____ inches

What is your weight? _____ pounds

What is your age? _____

When we mail you letters and other documents, what language would you like them to be written in?

- English
- Spanish

Are you on a special diet because of a health condition such as diabetes or hypertension?

- Yes
- No

Are you trying to lose weight?

- Yes
- No

Thank you for helping us with this research!

APPENDIX B
PARENTAL CONSENT FORM

Family Health Self-Empowerment Project

Aim One

Parental Consent

Please read this consent document carefully before you decide to give permission for your child to participate in this study.

Purpose of the research study:

The purpose of this study is to identify what makes it easier for adults, children, and adolescents to do things that benefit their health. The purpose is to also identify what makes it difficult for them to do things that benefit their health.

What your child will be asked to do in the study:

Your child will be asked to participate in a group discussion with 14 or fewer other children of the same age. They will be asked to talk about what makes it easier to do things that benefit their health or what makes it difficult for them to do things that benefit their health. For example, your child may be asked "What makes it hard for you to eat a healthy breakfast everyday". The group discussion will be videotaped and audiotaped. Your child will not be identified by his/her real name in the focus group.

Time required:

2 hours

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2006-U-0546
For Use Through 06/22/2007

Risks and Benefits:

We do not expect any risk to your child of participating in this study. However, your child may experience minor discomfort answering questions in the focus groups. We do not anticipate that your child will benefit directly by participating in this project. Your child may learn some information from other participants that might help him/her increase their health promoting behaviors.

Compensation:

Your child will be paid \$15 compensation for participating in this research.

Confidentiality:

Your child's identity will be kept confidential to the extent provided by law. The information we obtain will be assigned a code number. The list connecting your child's name to this code number will be kept in a locked file. Your child's name

will not be used in any report about this research. We cannot guarantee that your child's identity will be kept confidential by other group members. Audiotapes will be destroyed and discarded after all data are transcribed and scored. Videotapes will be kept in a locked file after all data are transcribed and scored. The videotapes may be used for the purpose of training others how to conduct focus groups.

Voluntary participation:

Allowing your child to participate in this study is completely voluntary. There is no penalty for not allowing your child to participate.

Right to withdraw from the study:

You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study:

Carolyn Tucker, PhD,
Department of Psychology
University of Florida
(352)392-0601, ext. 260

Whom to contact about your rights as a research participant in the study:

UFIRB Office
Box 112250
University of Florida
Gainesville, FL 32611-22250
(352)392-0433

Agreement:

I have read the procedure described above. I voluntarily give consent for my child _____, to participate in the study titled, "Family Health Empowerment Project". I have received a copy of this description.

Primary Parent/
Guardian: _____

Date: _____

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2006-U-0546
For Use Through 06/22/2007

APPENDIX C
FOCUS GROUP QUESTIONING ROUTE (EXCERPT)

Eating Healthy Foods and Snacks that are Lower in Fat and Calories Instead of Foods and Snacks that are High in Fat and Calories

Tell Participants: "Next we can discuss choosing healthy foods and snacks that are lower in fat and calories instead of choosing foods and snacks that are high in fat and calories. Examples of healthy snacks that you can eat instead of snacks that are not as healthy are: any kind of fruit (like an apple, banana, or raisins) instead of cookies, pretzels, nuts, or light popcorn instead of chips; and cereal, yogurt, or granola bars instead of candy bars or ice cream.

Examples of choosing healthy foods are baked chicken instead of fried chicken, a turkey sandwich instead of a beef sandwich, a bean burrito instead of a beef burrito, or a meal with vegetables in it instead of no vegetables."

10. If you do eat healthy foods and snacks that are lower in fat and calories, why do you eat them? If you don't eat healthy foods and snacks that are lower in fat and calories, what would encourage you to eat them?

- a. What makes it easier to eat healthy foods and snacks that are lower in fat and calories?
- b. What helps you to eat healthy foods and snacks that are lower in fat and calories?

11. If you don't eat healthy foods and snacks that are lower in fat and calories, why not? If you do eat healthy foods and snacks that are lower in fat and calories, why is it not always easy to eat them?

- a. Why is it hard to eat foods and snacks that are lower in fat and calories?
- b. What stops you from eating healthy foods and snacks that are lower in fat and calories?

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BIOGRAPHICAL SKETCH

Lily Boynton Kaye is a graduate student in the University of Florida's counseling psychology doctoral program, under the mentorship of Dr. Carolyn M. Tucker. Lily serves as project co-director of the UF-PepsiCo-Community Family Health Self-Empowerment Project, a \$1.2 million project designed to promote health and modify/prevent obesity among families, with a particular focus on low-income and racial/ethnic minority families. She received her undergraduate degree from the University of Florida in 2005, graduating summa cum laude with a Bachelor of Science degree in psychology and a Bachelor of Arts degree in linguistics. Currently, her research interests include developing prevention and intervention programs designed to reduce obesity, diet-related diseases, and/or sexual risk behaviors, as well as increase health promoting behaviors such as healthy eating and physical activity.