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Development and initial validation of the family eating and activity questionnnaire

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DEVELOPMENT AND INITIAL VALIDATION OF THE FAMILY EATING AND ACTIVITY QUESTIONNAIRE

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ABSTRACT

Pediatric overweight is a growing public health concern in the United States. According to the CDC approximately 17% of children are currently obese (Body Mass Index (BMI) $\geq 95^{th}$ percentile) and the percentage of obese children has tripled since the 1970's. Both eating and physical activity behaviors have been shown to be related to increased rates of obesity; however, there is a lack of assessment tools to measure these behaviors. The purpose of the current study was to develop a psychometrically sound, parent-report measure of family and child behaviors related to obesity in children between 5- and 12- years-old. Item generation, item selection, and initial exploratory factor analysis yielded a 45-item measure called the Family Eating and Activity Questionnaire (FEAQ). The FEAQ contains four subscales measuring health promoting family behaviors, obesogenic behaviors, mealtime routines, and family physical activity habits. Higher parent ratings on the FEAQ were shown to predict a decreased likelihood of their child being classified as overweight or obese. The FEAQ also demonstrated adequate internal consistency and temporal stability. Initial evidence of the convergent validity of the FEAQ with measures of family eating and physical activity habits, parenting behavior, childhood routines, and child conduct problems was demonstrated. The results of the study suggest that the FEAQ is a promising measure of family eating and physical activity habits related to obesity in children.

INTRODUCTION

Introduction

Significance of the Problem

Pediatric obesity is a growing public health concern in the United States. Approximately thirty-two percent of US children between the ages of two and nineteen are overweight or obese (Ogden, Caroll, & Flegal, 2008). Since the late 1970's the prevalence of obesity in children between six and eleven years old has tripled from 6.5% to 18.8% (Center for Disease Control (CDC), 2006). Recent estimates of obesity prevalence have shown that ethnic minorities, such as African American and Mexican American, girls and boys are more likely to have a higher BMI for age relative to their Caucasian counterparts (Ogden et al., 2008). According to the CDC, the largest increase in BMI for age has occurred in adolescent African American and Mexican American boys compared to Caucasian boys. For girls, adolescent African Americans have experienced the highest increase in prevalence compared to Caucasian and Mexican American girls (CDC, 2009).

Defining Overweight and Obesity

Overweight and obesity are categories that are meant to indicate a level of excess weight or body fat. Body fatness is estimated using a ratio of weight and height which is called body mass index (BMI) (CDC, 2009). Though BMI does not directly measure body fat, it has been shown to be a valid estimate of body fat in children (Mei et al., 2002). As children grow and mature they gain weight and this maturation occurs at different rates in males and females. As a result, to interpret the meaning of a child's BMI, BMI is plotted on a gender specific, BMI-for-age growth chart to determine BMI percentile (Kuczmarski et al., 2002). Children with a BMI equal to or above the 95th percentile are considered obese, while children between the 85th and 95th percentile are considered overweight (CDC, 2009).

Consequences of Obesity

Children who are overweight or obese are at increased risk for cardiovascular (Hopkins et al., in press; Muntner, He, Cutler, Wildman, & Whelton, 2009), endocrine (Al Mamun, Cramb, O'Callaghan, Williams, & Najman, in press; Nguyen, Srinivasan, Xu, Chen, & Berenson, 2008), musculoskeletal (Wearing, Hennig, Byrne, Steele, & Hills, 2006), pulmonary (Mamun et al., 2007), and sleep problems (Beebe et al., 2007). Additionally, overweight children are more likely to be obese in adulthood (Freedman, Dietz, Srinivasan, & Berenson, 2009) which is associated with increased risk for mortality (Maffeis & Tatò, 2001). However, only a 5-15% weight loss in overweight children can result in significantly reduced risk for cardiovascular disease, and positive changes in blood pressure, blood glucose levels, and cholesterol (Department of Health and Human Services, 2007), thus underscoring the need for intervention.

A number of psychosocial consequences are associated with being overweight as a child. For example, overweight children and adolescents demonstrate low self-esteem, poor social functioning, (Zeller, Saelens, Roehrig, Kirk, & Daniels, 2004), symptoms of depression and (Erickson, Robinson, Haydel, & Killen, 2000) anxiety (Sweeting, Wright, & Minnis, 2005), body image disturbance (Thompson et al., 2007), eating-disordered behavior, behavior problems (Tanofsky-Kraff et al., 2004), and peer victimization (Hayden-Wade et al., 2005; Pearce, Boergers, & Prinstein, 2002). Health-related quality of life, a global measure of psychosocial functioning, has been found to be lower among overweight children than healthy weight children (Pinhas-Hamiel et al., 2005; Swallen, Reither, Haas, & Meier, 2005; Zeller & Modi, 2006). Furthermore, overweight children tend to experience lower academic achievement, earn less income, and are less likely to get married (Zametkin, Zoon, Klein, & Munson, 2004).

Despite the health risks associated with being an overweight child, the problem often goes unaddressed. One common myth is that children will outgrow their obesity; thus parents often fail to perceive overweight as a problem until puberty. For example, overweight status in preschoolers often is not perceived as problematic by parents (Argas, Hammer, McNicholas, & Kraemer, 2004; Carnell, Edwards, Crocker, Boniface, & Wardle, 2005). However, one of the best predictors of obesity in adulthood is weight gain during the first 5 years of life (Styne, 2001). Additionally, adiposity tends to increase at various stages throughout the life span such as puberty and pregnancy (D. B. Johnson, Gerstein, Evans, & Woodward-Lopez, 2006).

The Obesogenic Environment

There are many theories as to why obesity is more prevalent today than 30 years ago. First, cultural changes in the United States have created an obesogenic environment or an environment which facilitates weight gain (Golan & Crow, 2004). For example, high calorie, high fat foods are available in abundance at relatively low costs which attracts families pressed for time and money (French, Story, & Jeffery, 2001). Additionally, Americans spend an increased amount of time in sedentary behaviors such as watching television and working at a computer (French et al., 2001).

Due to the chronic nature of childhood obesity and the potential for serious medical and psychosocial problems there has been a movement to develop effective treatments and preventive, measures for obesity in children. Multi-component family-based interventions which include dietary, physical activity, and behavioral counseling, have shown to be efficacious treatments for childhood overweight (American Dietetic Association, 2006; Young, Northern, Lister, Drummond, & O'Brien, 2007). These meta-analytic studies demonstrate that parental involvement is integral to the treatment of obesity in children (ADA, 2006; Young et al., 2007).

Because parents help to establish the psychosocial environment of the family (Story, 1999), parental involvement is crucial to making changes in the home and to providing the support and structure needed to facilitate a healthy environment for the overweight child (Epstein, Wing, Keoske, & Valoski, 1987). Additionally, research suggests that parents are essential to promoting behavior change in their children through the use of behavioral strategies such as differential reinforcement and modeling (Epstein & Wing, 1987; Golan & Weizman, 2001; McLean, Griffin, Toney, & Hardeman, 2003).

Obesogenic Factors

Several factors facilitating obesity have been identified in the literature, such as diet, eating patterns, activity levels, parenting style, genetics, and amount of sleep (Parsons, Power, Logan, & Summerbell, 1999). The following is a review of these is factors.

Diet

The energy balance model proposes that weight gain is attributable to greater energy intake than expenditure resulting in excess energy stored as fat (Williamson, Davis, Duchman, McKenzie, & Watkins, 1990). As a result, poor diet is one of the most commonly cited reasons for weight gain. The Bogalusa Heart Study found that consumption of sugary drinks, sweets, meats, fatty foods, and salty snacks was positively correlated with weight status in children (Nicklas, Yang, Baranowski, Zakeri, & Berenson, 2003). Additionally, food preferences differ in children of overweight and non-overweight families, with children of overweight families preferring the taste of fatty foods and disliking vegetables (Lakkakula, Zanovec, Silverman, Murphy, & Tuuri, 2008; Wardle, Guthrie, Sanderson, Birch, & Plomin, 2001). Wardle and colleagues found that children with overweight or obese parents showed higher responsiveness to food (e.g., eating without hunger, found food more reinforcing) than children of normal weight

parents. Other eating patterns linked to obesity include skipping breakfast, eating dinner or breakfast away from home (Ma et al., 2003), eating more energy dense snacks (Kagamimori et al., 1999), and larger portion sizes (Rolls, Morris, & Roe, 2002).

Sedentary Behaviors

Overweight children generally are less active than their normal weight peers and spend less time engaged in activities of moderate intensity such as brisk walking or bike riding (Page et al., 2005). Children from overweight families demonstrate greater preference for sedentary behaviors and spend more time engaged in sedentary activities (Wardle, Guthrie, Sanderson, Birch et al., 2001). Caroli, Argentieri, Cardone, and Masi (2004) report that increases in television watching correspond to decreases in activity level in children. According to the 2005-2006 Nielson report, the average household watches a little over eight hours of television daily (Holmes, 2006). Both television viewing and videogame use are associated with increases in BMI over time (Berkey et al., 2000; Vandewater, Shim, & Caplovitz, 2004). Decreases in children's activity levels are particularly problematic as activity levels tend to decline in adolescence. For example, Kim and colleagues (2002) found that activity levels in African American and Caucasian children decreased 100% and 64% respectively, between the ages of nine and nineteen.

Television and the Media

Television viewing not only decreases opportunities for physical activity, but has been shown to be related to poorer intake of vegetables, foods containing calcium, and grains and higher intake of sodas (Feldman, Eisenberg, Neumark-Sztainer, & Story, 2007). In a sample of nine to fourteen year old boys, television viewing while watching television predicted higher food intake than for children who did not watch television while eating (Bellissimo, Pencharz,

Thomas, & Anderson, 2007). This same study found that children preloaded with glucose and then fed pizza thirty minutes later while watching television consumed more and continued eating longer than children who did not watch television. Television viewing has also been shown to increase children's requests for advertised foods resulting in changes in food intake (Lewis & Hill, 1998). Another study showed that the more hours of television children watched each week, the lower their resting energy expenditure (Cooper, Klesges, DeBon, Klesges, & Shelton, 2006). Furthermore, Landhuis, Poulton, Welch, Hancox (2008) found that television viewing in childhood was a stronger predictor of physical fitness and BMI as an adult than adult viewing habits.

Television has been cited as one way in which media influences children's and adolescents' body image perceptions (Neumark-Sztainer, 2005). Body dissatisfaction has been linked to unhealthy weight control behaviors. For example, children with body dissatisfaction were more likely to use dietary restriction as a weight control strategy (Thelen & Cormier, 1995). Research has shown that dietary restriction is an ineffective weight control strategy and predicts weight gain in adolescents girls (Stice, Presnell, Shaw, & Rhode, 2005).

Child Temperament

Behavior problems tend to occur more frequently in overweight children (Stradmeijer, Bosch, Koops, & Seidell, 2000). In fact, children diagnosed with ADHD or Disruptive Behavior Disorder prior to 16-years-old had higher BMIs throughout life than those without these diagnoses (Anderson, Cohen, Naumova, & Must, 2006). Argas and colleagues (2004) have found that the relationship between parental overweight and childhood obesity is mediated by child temperament. That is, the incidence of behavior problems in overweight children explains the relationship between parent and child overweight status (Argas et al., 2004). The authors

suggest that genetic predisposition for obesity may also predispose a child to behavior problems. Argas and colleagues speculated that children's behavior problems may lead parents to engage in unhealthy eating habits like overfeeding or giving in to their children's preferences.

Other Risk Factors for Obesity

Sleep also has been linked to increased risk for obesity with overweight children getting thirty minutes less sleep and going to bed later than healthy weight children (Argas et al., 2004; Kagamimori et al., 1999). Higher birth weights show a positive correlation with weight status in childhood (Sable, Weyer, Lindsay, Ravussin, & Tataranni, 2002). Early feeding practices such as breast feeding for greater than six months appears to be related to lower risk for overweight (Grummer-Strawn & Mei, 2004). Finally, lower socioeconomic status and minority status have been linked to obesity with African American and Latino children showing a greater likelihood of being overweight compared to Caucasian children (Baltrus, Lynch, Everson-Rose, Raghunathan, & Kaplan, 2005; Haas et al., 2003; Wardle, Waller, & Jarvis, 2002).

Genetics

Parental obesity is also one of the best predictors of obesity in children (Argas et al., 2004). This relationship is likely due to both genetic and environmental factors (Bulik, Sullivan, & Kendler, 2003; Stunkard, Perdersen, & McClearn, 1990; Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). Twin studies have demonstrated that obesity in adulthood and childhood is greatly influenced by genetics (Maes, Neale, & Eaves, 1997; Segal, Feng, McGuire, Allison, & Miller, 2009; Wardle, Carnell, Haworth, & Plomin, 2008). Genetics may influence behavioral choices such as food preferences, eating habits, and eating in the absence of hunger (Kral & Faith, 2008). Researchers have also found environmental influences to be important in determining weight; however, genetic determinants appear to account for the greatest amount of variance (Nelson,

Gordon-Larsen, North, & Adair, 2006; Zeller et al., 2007). Specifically, children with shared experiences in the home could be served similar foods and exposed to similar modeling of health behaviors, rules about television viewing, and opportunities for physical activity. Despite these shared experiences, siblings may end up different weights (Wardle et al., 2008). Taken together, this suggests that parents are not solely responsible for their child's weight status. However, the variance accounted for by the environment, suggests that a genetic predisposition for obesity does not mean one cannot overcome their genetic predisposition; rather environmental and behavioral strategies can be made to moderate the effects of genetics (Ritchie, Welk, Styne, Gerstein, & Crawford, 2005).

Role of Parents in the Etiology and Prevention of Childhood Obesity

Mealtime Structure and Routines

The relationship between mealtime structure, routines, and childhood weight has not been measured directly. However, research has shown routines to be related to frequency of health promoting behaviors such as taking vitamins (Lee, Murry, Brody, & Parker, 2002). Structure and routine also have been measured in other populations with chronic illness such as asthma and type 1 diabetes mellitus (Jacobs & Fiese, 2007; Mellin, Neumark-Sztainer, Patterson, & Sockalosky, 2004). Jacobs and Fiese (2007) compared the role of mealtime routines in an overweight, asthmatic sample to that of a healthy weight, asthmatic sample. The authors reported that families with children who are overweight and asthmatic demonstrated increased sugar intake, had fewer adults at the dinner table, and had parents who had more difficulty managing behavior at mealtimes. Mellin and colleagues (2004) investigated the role of meal structure in families with Type 1 Diabetes Mellitus and found that the majority of families displayed a high degree of mealtime structure; however, families of girls with disordered eating

showed less mealtime structure. Examples of disordered eating included binge eating, skipping insulin doses, taking less insulin than needed, fasting, and use of laxatives or dieting pills.

Despite the lack of research on routines and structure, several topics comprising these constructs have been measured such as meal planning, eating meals as a family, and family interactions at mealtimes. A recent study reported that thirty percent of sampled families reported being too busy to eat as a family (Boutelle, Birnbaum, Lytle, Murray, & Story, 2003). The absence of parents at mealtimes and lack of meal planning is associated with higher fat intake and eating fewer fruits and vegetables (Gillman et al., 2000). Eating meals as a family may depend on the child's age as families with younger children are more likely to eat dinner together than families with adolescents (Gillman et al., 2000). The greater independence that comes with adolescence usually corresponds to increased consumption of fast food and fewer eating routines (Golan & Crow, 2004).

In households with overweight children, mealtimes are more likely to lack parental presence, be more chaotic, and be of shorter duration than in families of non-overweight children (Boutelle et al., 2003). Families with overweight children also are more likely to allow television viewing during dinner, which has been linked to increased consumption of foods such as pizza, salty foods, and soda, as well as, decreased consumption of fruits and vegetables (Coon, Goldberg, Rogers, & Tucker, 2001).

In addition to less mealtime structure, the mealtime environment in overweight families tends to be more negative and conflictual, as well as less supportive (Boutelle et al., 2003; Moens, Braet, & Soetens, 2007). Jacobs and Fiese reported that parents of overweight, asthmatic children felt more overwhelmed at mealtime, and had more difficulty managing their negative affect than parents of healthy weight, asthmatic children.

Modeling. Researchers have found environmental influences to be important in determining weight (Nelson et al., 2006; Zeller et al., 2007). Specifically, children within one home have shared experiences such as being served similar foods and exposed to similar modeling of health behaviors, rules about television viewing, and opportunities for physical activity. Social Cognitive Theory proposes that social behavior, personal factors, and the environment reciprocally and interactively influence health behaviors (Bandura, 1986, 1998, 2004). Social Cognitive Theory suggests that obesity-related behaviors are likely to be influenced by a combination of personal factors, including self-efficacy, personal goals, outcome expectations, perceived barriers and facilitators, and environmental factors (e.g., modeling and reinforcement). Modeling entails having someone performing certain behaviors to encourage others to do the same or similar things, thereby enhancing one's self efficacy for performing that behavior and perhaps increasing motivation for performing that behavior. Parent modeling of eating behaviors has been found to predict African-American children's dietary habits (Tibbs et al., 2001). Specifically, parent modeling of healthy eating habits predicted lower consumption of high fat foods and higher fruit and vegetable consumption in children.

Promotion of Physical Activity. Parents play an influential role in promoting children's physical activity. Davison, Cutting, and Birch (2003) report that children with parents who support their physical activity by enrolling them in sports, driving them to sporting events, and modeling active behavior, were more likely to be physically active than children of parents who did not facilitate sporting events for their children. Participation in organized sports has been linked to increased rates of physical activity in children; however, socioeconomic factors may prohibit some children from participating in organized sports (Moria Golan & S Crow, 2004). A recent report by the CDC found that African American and Hispanic mothers reported concerns

about transportation and expenses as barriers for participation in physical activity (CDC, 2003). Additionally, increases in children's activity levels appear to be dependent on increases in parental activity levels, highlighting the importance of parents' involvement in physical activity (Kalakinis, Goldfield, Paluch, & Epstein, 2001).

Parent Feeding Practices. Parenting practices influence children's ability to adjust their intake based on energy density of foods consumed. For example, in a recent study the majority of parents encouraged their child to eat more resulting in eighty-three percent of children eating past satiety and thirty-eight percent eating substantially more past satiety (Orrell-Valente et al., 2007). Parenting practices found to successfully encourage children to eat included the use of neutral prompts, food rewards and praise, whereas threats to remove privileges resulted in increased food refusal (Orrell-Valente et al., 2007). Johnson and Birch (1994) investigated the role of parental control in predicting a child's sensitivity to changes in caloric density of food. The authors found children of parents who endorsed behaviors such as, making children eat when they were not hungry, using dessert as a reward, eating according to the clock rather than internal cues lacked the ability to engage in caloric compensation. Lack of caloric compensation also predicted adiposity.

Faith and colleagues (2004) determined that parental restriction of children's food intake appears to predict overweight status in families at high risk for overweight, but not in families at low risk. Due to the differential effect for high risk and low risk families, the authors suggest the occurrence of a gene-environment interaction. However, when looking at within family differences, parental restriction has not been found to be related to child overweight status (Saelens, Ernst, & Epstein, 2000). In fact, in a discordant siblings analysis of maternal control found that maternal control was not significantly different for overweight and healthy weight

siblings within families, which suggests that other variables besides parental restriction may be involved (Saelens et al., 2000).

Parenting Style. Researchers also have examined parenting practices using Baurmind's model classifying parents as authoritative, authoritarian, permissive, and neglectful (Baumrind, 1971). Using these classifications, Gable and Lutz (2000) reported that parents of obese children had more permissive attitudes towards their child's eating habits; for example, allowing their child to make food choices with little parental guidance and lack of concern over the nutritious content of their child's food consumption. Other studies also have found permissive parenting styles to be related to overweight status in children (Moens et al., 2007; Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006). However, Rhee and colleagues (2006) report that parents with authoritarian parenting styles, characterized by high expectations for self-control and low responsiveness to their child's emotional needs, are the most likely to have overweight children compared with authoritative, permissive, or neglectful parents. On the other hand, authoritative parents, who are characterized by high expectations and high emotional responsiveness, are more likely to have healthy weight children (Rhee et al., 2006). Authoritative feeding styles are associated with greater consumption of dairy and vegetables, whereas authoritarian parents were negatively associated with vegetable consumption (Patrick, Nicklas, Hughes, & Morales, 2005). Rhee and colleagues speculate that sensitivity to the children's emotional needs is the key factor in fostering the ability to regulate eating. For example, authoritarian parents may be more likely to require children to clean their plate, and eat according to the clock rather than internal cues.

Treatment of Childhood Obesity

As previously mentioned, multi-component family-based interventions including dietary, physical activity, and behavioral counseling, have shown strong evidence as efficacious

treatments for childhood overweight (American Dietetic Association, 2006; Young et al., 2007). The dietary component of these interventions generally includes psycho-education and modification of food intake. Epstein's Traffic Light Diet has received the most empirical support as an effective method for improving children's dietary intake (Jelalian, Wember, Bungeroth, & Birmaher, 2007). The traffic light diet is designed to give children the most nutrition in the fewest calories (Epstein, 2003). Foods are divided into green, yellow, and red foods. Green foods are foods containing fewer than 20 calories per serving and are essentially free foods, in the sense that children can eat an unlimited amount of these foods. Yellow foods are staples of the diet which provide the most nutrition and red foods are foods that are high in fat and/or simple carbohydrates. Children are given a goal of 900 to 1200 calories a day and are to limit red foods to only four a week. Other diets have shown success such as the Protein Sparing Modified Fast (PSMF), which is a very low calorie diet designed for rapid weight loss in moderately to severely overweight children (Sothern, von Almen, Schumacher, Suskind, & Blecker, 1999). Although this diet has been shown to be safe and effective as part of an intensive weight loss program for moderately to severely overweight children, it requires close supervision by a physician and should only be used until the child has lost 20% of their original body weight (Sothern, Schumacher, Von Almen, Carlisle, & Udall, 2002). As of now, the Traffic Light Diet shows the most promise as a diet which promotes sustainable lifelong healthy eating habits and has been associated with long term weight reductions in children (Epstein, McCurley, Wing, & Valoski, 1990).

The physical activity component of behavioral interventions is designed to increase energy expenditure in children. However, motivating overweight children to be physically active can be challenging as physical activity is often less reinforcing to the overweight child than sedentary behavior (Epstein, 2003). The traditional aerobic exercise program has resulted in

short-term weight loss in children, but results generally are not maintained at six and eighteen months (Epstein, Wing, Keoske, & Valoski, 1985). As a result, Epstein developed the lifestyle exercise program which incorporates physical activity into the family's daily activities (Epstein, 2003). Children select activities from a menu of choices and earn points for energy expenditure. The lifestyle exercise program results in behavior changes that repeatedly have been shown to result in sustained weight loss at two year follow-up (Epstein et al., 1985). Researchers also have found that required reduction of children's sedentary behaviors generally results in increased non-sedentary behaviors, although sometimes children replace one sedentary behavior with another (Epstein, Roemmich, Paluch, & Raynor, 2005). Due to the reinforcing nature of inactivity in overweight children, sedentary behavior has been used to as a reinforcer for increased physical activity (Epstein, 2003).

Behavior modification procedures are essential to the comprehensive treatment of childhood obesity (American Dietetic Association, 2006; Epstein, Wing, Steranchak, Dickson, & Michelson, 1980). Commonly used behavioral techniques include self-monitoring, goal setting, stimulus control, behavioral substitution, and contingency management (Jelalian et al., 2007; Sothern, Von Almen, & Schumacher, 2001). Self-monitoring involves completing daily records about food intake and physical activity. Stimulus control is accomplished by making environmental changes to reduce cues for eating and inactivity. Examples might include ridding the house of unhealthy foods or driving a new route home to avoid driving past a fast food location. Behavioral substitution refers to replacing unhealthy behaviors with more healthy behaviors, such as talking on the phone while walking around the house instead of watching television. Goal setting focuses on setting behavioral change goals in calorie intake or physical activity. Finally, contingency contacting involves rewarding children for meeting their goals and making changes in a targeted behavior.

Problem solving has been shown to be a potentially important component in the treatment of childhood obesity, but results are inconclusive. Graves, Meyers, and Clark (1988) reported superior relative weight loss in parents and children when problem solving skills were incorporated into the treatment. However, Epstein, Paluch, Gordy, Saelens & Ernst (2000) were unable to replicate these findings.

Support for the Role of Parents in the Treatment Literature

Parents play an integral role in the treatment of obesity in children (Golan & Crow, 2004). Parental participation in weight loss efforts appears to be an important means of facilitating the success of sustained weight loss efforts in children (Epstein et al., 1990; Epstein et al., 1987). Epstein et al. (1987) hypothesized that parental weight loss may promote child weight loss by increasing modeling of healthy behaviors, increasing parental support for behavior change, and increasing positive reinforcement. However, the parents in Epstein's study did not maintain weight loss after five years suggesting that parents were no longer modeling healthy habits. As a result, it seems that the parent management strategies may have been the important component. In fact, selecting low calorie foods, graphing weight, and removal of high calorie food from the house were associated with sustained weight loss at follow-up.

Due to previous research indicating that parental weight loss predicted better treatment outcomes in children, Israel and colleagues sought to compare the effectiveness of targeting the parent for weight loss versus the parent in a "helper" role (Isreal, Solotar, & Zimand, 1990; Isreal, Stolmaker, Sharp, Silverman, & Simon, 1984). Parents in the weight loss group were taught behavioral techniques to promote their own weight loss; whereas parents in the helper group were taught behavioral techniques to assist their child in weight loss. Both forms of parental involvement appear to be effective in the short term, and do not differ after one year.

Golan and Weizman have compared targeting the parent versus targeting the child as the agent of change (Golan, Fainaru, & Weizman, 1998; Golan, Weizman, Apter, & Fainaru, 1998). In these studies, a parent-only group was compared to a child-only group; however, in comparison to earlier studies the parent group was oriented toward improving the health of the entire family as opposed to their own weight loss or the weight loss of the child. The child only group was a treatment as usual group focused on the weight loss of the child. The results of the two studies indicated that the parent only condition resulted in significant weight reduction in children as compared to the child only group. Additionally, the parent only group was associated with significantly less attrition than the child only group (Golan, Weizman et al., 1998). Finally, the addition of parent training skills to the traditional multi-component behavioral treatment approach appears to be associated with better maintenance of improved weight status after one year than the traditional multi-component behavioral treatment (Isreal, Stolmaker, & Andrian, 1985). Overall, the treatment literature emphasizes the importance of parental involvement in the treatment of childhood overweight.

Assessment of Eating and Factors Related to Weight Status

Review of the pediatric obesity literature indicates that obesity in childhood is the result of behavioral, environmental, and genetic factors. Since genetic factors are constant, treatments have targeted behavioral and environmental factors related to obesity. Namely parents are responsible for making modifications in the environment to illicit behavior change in their children. In order to tailor treatments to individual families a psychometrically sound assessment measure is needed to identify obesogenic behaviors and environmental factors.

Several measures of weight related factors have been developed. The following is a review of the currently available assessment measures for children.

Parent Report Measures of Child Eating Behaviors

Children's Eating Behavior Questionnaire (CEBQ, Wardle, Guthrie, Sanderson, & Rapoport, 2001). The CEBQ is a 35-item parent report measure of eating style in children aged three to eight. It is comprised of eight subscales: food responsiveness, enjoyment of food, emotional overeating, desire to drink, satiety responsiveness, slowness in eating, emotional under eating, and fussiness. The CEBQ was developed to examine how child eating style contributed to obesity and is intended for use in research. The theoretical basis for the CEBQ has been confirmed through factor analysis. The measure is internally consistent (range= .72 to .91) and has moderate test-retest reliability (range=.52-.87).

The CEBQ is a psychometrically sound measure of children's eating style and is intended for use in research investigating the association between eating style and obesity (Carnell & Wardle, 2007; Wardle, Guthrie, Sanderson, & Rapoport, 2001). However, the clinical applications of this measure are not evident.

Children's Eating Behavior Inventory (CEBI, Archer, Rosenbaum, & Streiner, 1991). The CEBI is a 40-item parent report measure of eating and mealtime problems in childhood and perceive parental stresses for parents of children ages 2 to12. The measure was designed for use with children with developmental or physical disabilities. The measure has not been established as a measure of obesogenic factors; however, previous research suggests eating and mealtime problems are related to eating more unhealthy foods which contributes to weight status (Boutelle et al., 2003). The CEBI demonstrates adequate internal consistency (α=.76) and test-retest reliability (r=.81).

Self-Report Measures of Child Eating Behavior

Eating Pattern Inventory for Children (EPI-C, Schacht, Richter-Appelt, Schulte-Markwort, Hebebrand, & Schimmelmann, 2006). The EPI-C is a 20 item self-report measure

of psychological factors related to eating including dietary restraint, external eating, parental pressure to eat, and emotional eating for preadolescents in the fourth grade and higher. Internal consistencies of the subscales range from .72 to .93. The EPI-C was developed from a German inventory which has only been used in adolescents (Schacht et al., 2006). As a result, items on the EPI-C were changed for use with younger children. The factor solution of the original scale was maintained in the EPI-C. However, over half the items from the original measure had to be removed, indicating that eating behaviors is different for adolescents and children. The ability of the EPI-C to reliably discriminate between overweight and healthy weight children has not been established, except that overweight children were more likely to score higher on the dietary restraint scale and endorsed lower levels of parental pressure to eat.

One limitation of this measure is that it has not been validated in an English speaking population. Additionally, retest reliability of the EPI-C and sensitivity to treatment have not been examined. Finally, the EPI-C appears to be a valid measure of psychological factors related to eating, but is not a measure of obesogenic or health promoting behaviors. The EPI-C fails to measure important environmental factors and parenting behavior other than parental pressure to eat.

Dutch Eating Behavior Questionnaire Parent Version (Caccialanza et al., 2004). The DEBQ-P was adapted from a Dutch questionnaire which assesses emotional eating, external eating (eating in response to external cues), and restrained eating in adults (van Strien, Frijters, Bergers, & Defares, 1986). The DEBQ-P is a parent report measure of emotional, external, and restrained eating in children. It has been shown to have adequate internal consistency and adequate factor structure. Caccialanza et al. (2004) reported that, in contrast to previous research, only restrained eating was related to overweight status in children. One limitation of this measure is that it has not been validated in an English speaking sample.

Measures of Parent Feeding Practices

Child Feeding Questionnaire (CFE, Birch et al., 2001). The CFE is a 31-item measure of child feeding practices and concerns for obesity for parents of children ages two to eleven. Factors include: parental perceived responsibility, perceived parent weight, perceived child weight, parental concern, restriction, pressure to eat, and parental monitoring. Perceived parent weight and perceived child weight factors were positively related to weight status in children. Additionally, parents who reported less pressure to eat and greater use of restriction, were more likely to have overweight children. The CFE appears to provide a psychometrically sound way to measure parenting behaviors and attitudes related to obesity; however, additional research is needed to determine its clinical utility.

Assessment of Eating and Physical Activity

Family Eating and Activity Habits Questionnaire (FEAHQ, Golan & Weizman, 1998). The FEAHQ is a 21-item parent-report measure of family behaviors and environmental factors related to weight gain or weight loss (Golan & Weizman, 1998). It is comprised of four variables: activity level, stimulus exposure, eating related to hunger, and eating style. Subscale scores are calculated for each member of the family (mother, father, and child). The measure has shown acceptable levels of test-retest reliability (range= .78-.90) and internal consistency (α=.83). The FEAHQ appears to be sensitive to behavior changes during treatment. The FEAHQ has demonstrated concurrent validity with obese children having significantly higher scores on the FEAHQ than healthy weight children. Additionally, the content validity of the measure has been evaluated by an expert panel.

The FEAHQ improves upon previous measures as it seeks to measure several important factors such as parenting behaviors, environmental factors, and eating and physical activity

behaviors. The FEAHQ may have potentially useful clinical applications such as identifying target behaviors for treatment and monitoring treatment progress. However, inadequate procedures were used in the development of the questionnaire. For example, a factor analysis has not been conducted to establish the construct validity or factor structure of the measure. Additionally, the scale fails to measure parenting practices such as use of reinforcement for healthy behaviors and enforcement of household rules and routines. The questionnaire is difficult for parents to complete and the scoring of the questionnaire is confusing, as item responses are not rated consistently throughout the measure and each factor is scored differently. Finally, the use of mother, father, and child report make the questionnaire cumbersome and difficult to use with non-nuclear families.

Family Nutrition and Physical Activity Screening Tool (FNPA, Ihmels, Welk, Eisenmann, & Nusser, 2009). The FNPA is a 21-item questionnaire of behaviors related to risk for overweight. The questionnaire contains items regarding family behaviors related to diet, screen time, physical activity (of both the parents and child), family rules, family meals and sleep routines. Higher scores on this measure indicate more health promoting and lower score indicated greater risk for obesity. The FNPA has demonstrated construct validity through factor analysis and has been shown to discriminate between overweight and healthy weight children.

Parenting Strategies for Eating and Activity Scale (PEAS, Larios, Ayala, Arredondo, Baquero, & Elder, 2008). The PEAS is a 26-item measure of parenting behaviors related to eating and physical activity. The PEAS is available in both English and Spanish and was developed and validated in a Latino sample. The PEAS has a 5-factor structure measuring limit setting, monitoring, discipline, control, and reinforcement related to eating and physical activity behaviors in children. However, only the control subscale of the PEAS is significantly

correlated with zBMI. Parents with fewer controlling behaviors were more likely to have children with higher BMIs.

Summary of the Assessment Literature

Most of the previously mentioned measures assess children's eating style through either parent or child report (Caccialanza et al., 2004; Wardle, Guthrie, Sanderson, & Rapoport, 2001). Commonly assessed variables include restrained eating, emotional eating, and eating style (Schacht et al., 2006). These measures fail to reflect the importance of parenting behaviors in child weight status. One measure of parent feeding practices and one measure of mealtime problems were identified (Birch et al., 2001). Despite the importance of eating style in predicting overweight status, several other important factors have been identified, such as, parental participation in health behaviors, parenting practices, mealtime structure, home eating environment, child activity level, and television viewing. Finally, three instruments measured both eating behavior and physical activity habits of the family as a whole, but only the FEAHQ was available at the outset of the study. The psychometric properties of the FEAHQ measure have not been explored (Golan & Weizman, 1998). Overall, the assessment literature lacks a psychometrically sound instrument which can be used to identify healthy and obesogenic behaviors in families with obese and overweight children. Creation of such a measure has both important clinical and research applications.

Purpose of the Study

The purpose of the current study was to develop a psychometrically sound caregiver report measure of family behaviors related to overweight status in children. The current measure is intended to guide treatment and measure behavioral changes related to treatment, by identifying obesogenic behaviors and health promoting behaviors in families. The scale

measures the frequency of family behaviors related to weight gain and weight loss. Examples include parenting behavior related to creating a healthy environment, such as, monitoring of food intake, establishment of limits and routines, modeling of healthy behaviors and attitudes, and stimulus control. The scale also measures the frequency of child behaviors such as activity levels, healthy eating, watching television while snacking, and sneaking food. The development of the current measure improves upon previous measures by employing providing evidence of the construct, convergent, and concurrent validity of the scale.

Hypotheses

1. The frequency of health promoting family behaviors as measured by the Family Eating and Activity Questionnaire (FEAQ) would discriminate between overweight and healthy weight children.
2. The frequency of health promoting family behaviors as measured by the FEAQ would show a strong inverse correlation with family obesogenic behaviors as measured by the Family Eating and Activity Habits Questionnaire (FEAHQ).
3. The frequency of healthy promoting family behaviors as measured by the FEAQ would be positively correlated with the frequency of positive parenting behaviors and parent involvement as measured by the Alabama Parenting Questionnaire (APQ).
4. The frequency of health promoting family behaviors as measured by the FEAQ would be positively correlated with the frequency of child routines as measured by the Child Routines Questionnaire (CRQ).
5. The frequency of health promoting family behaviors as measured by the FEAQ would be inversely correlated with child conduct problems as measured by the Eyberg Child Behavior Inventory (ECBI).

PHASE 1: ITEM GENERATION

Method

Aim and Purpose

The purpose of the initial phase was to develop a pool of items related to family eating and physical activity routines, parenting behavior, and obstacles to healthy eating and physical activity common in children between the ages of 5 and 12.

Participants

The participants included 38 primary caregivers with children between the ages of 5 and 12. Caregivers were recruited from psychology clinic waiting rooms and undergraduates enrolled in introductory level psychology classes at LSU who were seeking extra credit. The sample was comprised mostly of Caucasian female caregivers from upper middle class families as measured by the Hollingshead Index (see Table 1) (Hollingshead, 1975). A majority of the caregivers reported that their child's height and weight were in the healthy weight range according to the CDC BMI percentile classifications (Kuczmarski et al., 2000).

In addition, 15 professionals with experience working with overweight families reviewed and assisted in generating additional items. Specifically the experts consisted of 7 doctoral-level clinical psychologists, all of whom have research and clinical expertise in pediatric psychology and 3 of whom have research expertise in the treatment and prevention of obesity in children and adults and; 5 master-level graduate students specializing in clinical child psychology, two of whom have experience implementing weight loss interventions with families; two exercise physiologists involved in interventions targeting childhood obesity, and one dietitian also involved in nutrition education for overweight and obese children.

Table 1. Demographic Characteristics of the Item Generation Sample

	Frequency (n=38)	Percentage
Caregiver Age	*M*= 39.3 (6.3)	
26-30	3	8.1
31-35	8	21.6
36-40	10	27.0
41-49	16	43.2
Caregiver Gender		
Male	5	13.2
Female	33	86.8
Caregiver Ethnicity		
White	32	84.2
Black	4	10.5
Asian	1	2.6
Other	1	2.6
Child Age	*M*= 9.35 (2.2)	
5	2	5.4
6	4	10.8
7	0	0
8	7	18.9
9	6	18.9
10	3	8.1
11	5	13.5
12	9	24.3
Child gender		
Male	18	47.4
Female	20	52.6
Child zBMI[a]	*M*= .57 (1.1)	
Child BMI Percentile[a]	*M*= 66.0 (27.0)	
Child Weight Classification[ab]		
Underweight	1	2.6
Healthy Weight	20	52.6
Overweight	5	13.2
Obese	4	10.5

(**Table 1 continued)**

	Frequency (n=38)	Percentage
SES Level		
I	0	0
II	1	2.6
III	1	2.6
IV	22	57.9
V	13	34.2

Note: [a]Based on caregiver-reported height and weight [b]Based on CDC weight classifications (Underweight: BMI less than the 5thpercentile; Healthy Weight: BMI equal to the 5th percentile to less than the 85th percentile; Overweight: BMI equal to the 85th percentile to less than the 95th percentile; and Obese: BMI equal to or greater than the 95th percentile)

Measures

Demographic Questionnaire. Caregivers provided demographic information about themselves, their spouse, and their child (see Appendix A). Socioeconomic Status (SES) was calculated based on marital status, occupation, and education level (Hollingshead, 1975). Body Mass Index (BMI) was calculated using caregiver-reported height and weight and was converted in to a BMI percentile and standardized (*zBMI*) using age and gender normative data from the Centers for Disease Control and Prevention (Kuczmarski et al., 2000). Children's BMIs were categorized based on CDC weight classifications (Underweight: BMI less than the 5thpercentile; Healthy Weight: BMI equal to the 5th percentile to less than the 85th percentile; Overweight: BMI equal to the 85th percentile to less than the 95th percentile; and Obese: BMI equal to or greater than the 95th percentile) (CDC, 2009).

Survey of Eating and Physical Activity Routines. A survey of family eating and physical activity routines, parenting behavior, and obstacles to healthy behaviors was used to gather information in order to generate items (see Appendix B). Caregivers were asked to describe mealtime and physical activity rules and routines at home and school, meal planning, grocery shopping routines, as well as negative behaviors associated with overweight in the

literature. Example routines and items created from those routines were provided. These prompts were rationally derived from a thorough review of the pediatric obesity and parenting literature.

Procedure

Caregivers of children between the ages of 5 and 12 were recruited via psychology undergraduate students seeking extra credit in an introductory psychology class and by research assistants in physician clinic waiting rooms. Written explanations of the study were provided. Caregivers were informed about the purpose of the study and informed consent was obtained (see Appendix C). Caregivers completed the demographics questionnaire and caregiver survey of eating and physical activity routines.

Results of Phase 1

Item Generation

The caregiver surveys resulted in 1018 responses across 8 areas (caregiver and child mealtime behaviors, caregiver and child physical activity habits, daily routines, parenting practices, obstacles to healthy eating, and obstacles to physical activity). The childhood obesity literature was reviewed to generate additional child and parenting behaviors and routines that have been shown to be related to obesity in children. Items from related measures of eating behavior in children were reviewed, rewritten, and included for expert review. Items were reviewed for redundancy and resulted in a pool of 114 items.

Expert Panel Review

Fifteen experts with a background in working with overweight children and their families independently reviewed the 114 items for relevance and clarity. They were also asked to make suggestions for word choice, identify redundant items, and suggest additional items (see Appendix D). The researcher reviewed the recommendations made by each expert. Wording

changes were adopted, items rated as irrelevant by two or more reviewers were deleted, and redundant items were combined or deleted. A pool of 99 items remained. The initial FEAQ had a 6th grade reading level based on the Flesch-Kincaid Reading Level formula.

PHASE 2: ITEM SELECTION

Method

Aim and Purpose

The purpose of the second phase was to reduce the pool of generated items to a concise and internally consistent inventory representing commonly occurring behaviors related to healthy and unhealthy eating and physical activity in children.

Participants

A total of 310 caregivers with children between the ages of 5 and 12 were recruited from elementary and middle schools in Houston, TX and through undergraduates at Louisiana State University who were seeking extra credit. As shown in the table 2, the sample consisted of participants of diverse ethnicities, SES levels, and weight classifications.

Table 2. Demographic Characteristics of the Item Selection Sample

	Frequency (n=310)	**Percentage**
Caregiver Age	*M*=39.1 (7.2)	
19-25	11	3.7
26-30	25	8.5
31-35	56	19.0
36-40	80	27.1
41-49	99	33.6
50-61	24	8.1
Caregiver Gender		
Male	42	13.5
Female	268	86.5
Caregiver Ethnicity		
White	160	51.6
Black	64	20.6
Hispanic	61	19.7
Asian	20	6.5
Pacific Islander	1	.3
Other	2	.6

(Table 2 continued)

	Frequency (n=310)	Percentage
Child Age	*M*=8.7 (2.3)	
5	28	9.0
6	46	14.8
7	37	11.9
8	39	12.6
9	27	8.7
10	34	11.0
11	51	16.5
12	41	13.2
Child gender		
Male	149	48.1
Female	157	50.6
Child zBMI[a]	*M*= .48 (1.6)	
Child BMI Percentile[a]	*M*= 63.6 (33.0)	
Child Weight Classification[ab]		
Underweight	18	5.8
Healthy Weight	133	42.9
Overweight	45	14.5
Obese	50	16.1
SES Level		
I	22	7.1
II	18	5.8
III	38	12.3
IV	138	44.5
V	91	29.4

Note: [a]Based on caregiver-reported height and weight
[b]Based on CDC weight classifications

Measures

Demographic Questionnaire. Same as phase 1 (see Appendix A).

Family Eating and Activity Questionnaire (initial version) (FEAQ*).* The initial version of the FEAQ consisted of 99 items generated during phase 1 (See Appendix E). Caregivers of children between the ages of 5-12 were asked to rate the frequency of family

behaviors related to weight status using a 5-point Likert scale ranging from 0 (almost never) to 4 (nearly always).

Procedure

After being informed of the purpose of the study and obtaining informed consent, caregivers were asked to complete the demographic questionnaire and the initial version of the FEAQ. Caregivers recruited by undergraduate students were informed in writing about the purpose of the study and asked to complete the demographic questionnaire and the FEAQ. These caregivers were told that they would be contacted by the experimenter to verify their completion. After obtaining consent, caregivers completed the questionnaires (see Appendix F). Twenty percent of caregivers contacted by psychology undergraduates were contacted by phone to verify their participation. This resulted in 7 questionnaires being excluded due to being unable to verify that informed consent was obtained or and 2 due to incomplete data.

Results of Phase 2

Item Selection

Descriptive analysis was conducted to determine item means, standard deviations, frequencies, and skewness of the response distribution. Items were considered for elimination based on the following criteria: 1) item mean of less than 2.0 indicating the average rating was close to the mean of all possible responses (DeVellis, 2003) 2) an item-total correlation of .20 or greater 3) Inter-item correlation of .8 or more to avoid redundancy (Sytsma, Kelley, & Wymer, 2001) 4) factor loadings on principle components of .32 or less on the factor analysis (Tabachnick & Fidell, 2001).

Item Frequency. Frequency of rating endorsement was calculated for each of the 99 items (see Appendix G).

Item Means. Prior to calculating item means, items were considered for reverse scoring based on negative correlations with other items (See Appendix H). Item means ranged from 0.9 - 3.8 (see Appendix I). Items with an item mean less than 2.00 were considered for elimination. This resulted in the removal of 16 items.

Item-Total Correlations. Item-total Correlations were calculated. Item-total correlations ranged from .01 - .55 (see Appendix I). Items with Item-total correlations less than .2 were considered for elimination (DeVellis, 2003). This resulted in the removal of 28 items, 8 of which overlapped with low mean items. Items were also considered for elimination based on inter-item correlations of r>.80; however, no items were eliminated for this reason.

Exploratory Factor Analysis. Exploratory Factor Analysis with the Maximum Likelihood Extraction method and a varimax rotation was conducted with the remaining 63 items (Costello & Osbourne, 2005). Missing values were replaced with item means (Tabachnick & Fidell, 2001). The number of factors retained in the scale was determined based on the eigenvalue greater than one criterion and visual examination of the scree plot (Cattell, 1978). Visual examination of the scree factor plot suggested that a 5- factor model was most appropriate. A 4-, 5-, and 6- factor model were examined and factor analysis forcing a 4-factor structure provided the most comprehensible solution, yielding a 46-item solution accounting for 27.0 percent of the variance. Factors were considered for elimination based on having a factor loading less than .32 (Tabachnick & Fidell, 2001). This resulted in the elimination of 16 items. Two items loaded on more than one scale, but were retained in the scale for further analysis. A list of eliminated items is available in Appendix J. The face validity of the underlying "latent" constructs which make up the factors was examined to provide evidence for the construct validity of the scale.

The four-factor solution reflects the following latent constructs: Healthy Family Behaviors, Unhealthy Family Behaviors, Mealtime Routines, and Physical Activity Habits (see Appendix K). Factor 1, Healthy Family Behaviors, included 14 items relating to healthy caregiver and child behaviors such as "I make low calorie, low fat foods when cooking for my family" and "My child eats vegetables at dinner." Factor 2, Unhealthy Family Behaviors, consisted of 17 items relating to unhealthy family behaviors such as "My child sneaks food" and "My child complains of hunger." Two items on this subscale "My child eats when he/she feels bored" and "My child eats when he/she feels sad, mad, or nervous" were combined into one item "My child eats when he/she feels bored, sad, mad, or nervous" in order to improve conciseness of the measure. Factor 3, Mealtime Routines contained 7 items related to child behaviors at meals, such as "My child eats at the table" and "My child eats three meals a day." Factor 4, Physical Activity Habits contained 8 items related to family physical activity behaviors such as, "My child participates in physical activities with parents/caregivers" and "My child prefers indoor activities over outdoor activities." The final measure consisted of 45 items (see Appendix L).

Reliability

Internal consistency of the 46-item scale and 4 subscales was calculated using Cronbach alpha. The 46-item scale demonstrated excellent internal consistency with an alpha coefficient of .87. The 4 subscales also demonstrated adequate internal consistency with coefficient alphas ranging from .75 to .85. Coefficient alphas are presented in Appendix K. Items were considered for elimination based on a negative item-correlation, though no items met these criteria.

PHASE 3: VALIDATION AND ASSESSMENT OF RELIABILITY

Method

Aim and Purpose

The purpose of the third phase of the study was to assess the initial psychometric properties of the FEAQ. Internal consistency, retest reliability, and initial validity data were analyzed.

Participants

A total of 233 caregivers with children between the ages of 5 and 12 were recruited from 1st through 6th grade classrooms in the same manner as that of Phase 2, except, no participants were recruited through psychology undergraduates during this phase. Table 3 provides a summary of the demographic characteristics of the sample.

Table 3. Demographic Characteristics of the Validation Sample

	Frequency (n=233)	**Percentage**
Caregiver Age	*M*= 39.4 (6.7)	
19-25	2	.9
26-30	23	10.3
31-35	30	13.4
36-40	75	33.5
41-49	83	37.1
50-59	10	4.5
60-65	1	.4
Caregiver Gender		
Male	34	14.6
Female	180	77.3
Caregiver Ethnicity		
White	108	46.4
Black	35	15.0
Hispanic	86	36.9
Asian	1	.4
Pacific Islander	1	.4
Other	1	.4

(Table 3 continued)

	Frequency (n=233)	Percentage
Child Age	*M*= 9.43 (2.0)	
5	2	.9
6	22	9.4
7	32	13.7
8	17	7.3
9	30	12.9
10	44	18.9
11	46	19.7
12	40	17.2
Child gender		
Male	103	44.2
Female	130	55.8
Child zBMI[a]	*M*= .79 (.9)	
Child BMI Percentile[a]	*M*=71.8 (25.1)	
Child Weight Classification[ab]		
Underweight	1	.4
Healthy Weight	115	49.4
Overweight	47	20.2
Obese	40	17.2
SES Level		
I	7	3.0
II	32	13.7
III	34	14.6
IV	66	28.3
V	79	33.9

Note: [a]Based on measured height and weight
[b]Based on CDC weight classifications

Measures

Anthropometrics. With caregiver consent and child assent, children's heights and weights were collected at their school on the day that questionnaires were collected by the researcher. Weights were obtained using a digital scale with participants wearing light clothing and no footwear. Height was measured using a stadiometer with participants wearing no

footwear. All heights and weights were collected by the researcher in order to ensure measurement reliability. Body Mass Index (BMI) was calculated using measured height and weight and was converted into a percentile and standardized (*zBMI*) using age and gender normative data from the Centers for Disease Control and Prevention (Kuczmarski et al., 2000). Children were assigned to a weight category based upon the CDC classification guidelines (Underweight: BMI less than the 5thpercentile; Healthy Weight: BMI equal to the 5th percentile to less than the 85th percentile; Overweight: BMI equal to the 85th percentile to less than the 95th percentile; and Obese: BMI equal to or greater than the 95th percentile) (CDC, 2009).

Family Eating and Activity Questionnaire (Final Version) (FEAQ). The final version of the FEAQ containing the 45 items retained from study 2 was used in the validation phase of scale development (see Appendix L). The FEAQ is comprised of 4 subscales: Healthy Family Behaviors, Unhealthy Behaviors, Mealtime Routines, and Physical Activity Habits. Obesogenic behaviors were reverse coded so that higher scores on the FEAQ and its subscales indicate greater frequency of healthy promoting behaviors. Caregivers of children ages 5-12 were asked to rate the frequency of family behaviors related to weight status using a 5-point Likert scale ranging from 0 (almost never) to 4 (nearly always). Items were later reverse coded for scoring.

Family Eating and Activity Habits Questionnaire (FEAHQ, Golan & Weizman, 1998). The FEAHQ is a 21-item measure of family behaviors and environmental factors related to weight gain or weight loss (Golan & Weizman, 1998) (see Appendix M). It is comprised of four variables: activity level, stimulus exposure, eating related to hunger, and eating style. Subscale scores are computed for each member of the family (child, mother, and father). Higher scores on the FEAHQ scales indicate more sedentary behaviors, greater exposure to unhealthy foods, greater frequency of eating when not healthy and overall inappropriateness of eating

patterns. The measure has shown acceptable levels of test-retest reliability (range= .78-.90) and internal consistency (α=.83). The authors of the FEAHQ compared the reports of 40 parents, 50% of whom had overweight children and found that overweight children had significantly higher scores on the FEAHQ indicating greater frequency of obesogenic behaviors than normal weight children. Additionally, the content validity of the measure has been evaluated by an expert panel.

Alabama Parenting Questionnaire (APQ, Frick, Christian, & Wooten, 1999). The Alabama Parenting Questionnaire is a six factor scale and consists of 42 total items (see Appendix N). Items are grouped on the following factors: Parent Involvement (10 items), Positive Parenting (six items), Poor Monitoring/Supervision (10 items), Inconsistent Discipline (six items), Corporal Punishment (three items), and Other Discipline Techniques (seven items). Overall, the APQ scales had acceptable levels of reliability (above .70) with the exception of the inconsistent discipline scale (.54 and .62 for the mother and father data, respectively).

Child Routines Questionnaire (CRQ, Sytsma-Jordan, Kelley, & Wymer, 2001). The CRQ (Sytsma-Jordan et al., 2001) is a 36-item paper and pencil, parent report questionnaire which assesses routines in daily living of school age children ages 5- to 12-years-old (see Appendix O). The measure contains four subscales: Daily Living Routines, Household Responsibilities, Discipline Routines, and Homework Routines. The CRQ has high internal consistency (α=.90) and good test-retest reliability (.86). The CRQ has demonstrated good construct validity as it is positively correlated with the Family Routines Inventory and negatively correlated with the Eyberg Child Behavior Inventory.

Eyberg Child Behavior Inventory (ECBI, Robinson, Eyberg, & Ross, 1980). The ECBI is a 36-item measure of child behavior problems (see Appendix P). The ECBI assess the

frequency of occurrence (Intensity scale) as well as whether it is considered to be a problem by the parent (Problem Scale). The ECBI has demonstrated excellent internal consistency (α=.98) and good adequate temporal stability (Intensity Scale, r = .86; Problem Scale, r = .88). The construct validity of the ECBI has been demonstrated through principal components analysis which revealed a one-dimensional measure of conduct problems which accounted for 63% of the variance.

Procedure

Caregivers with children between the ages of 5 and 12 were recruited in the same manner as Phase 2. Participants completed the demographic questionnaire, the CRQ, ECBI, APQ and the FEAQ. With parental consent and child assent (see Appendix Q), researchers measured the heights and weights of children whose caregivers completed the caregiver questionnaires.

Eighty-three caregivers were asked to complete the FEAQ a second time two weeks later to assess test-retest reliability. Caregivers were given 1 week to return the questionnaire. Caregivers were given and incentive of $5 to complete the FEAQ a second time. Forty-seven caregivers returned the completed questionnaire within one week. Some caregivers returned the questionnaire with their child to school and some questionnaires were returned through the mail, postmarked by the date specified. Caregivers were provided with a preaddressed and stamped envelope to return the questionnaires.

Results of Phase 3

Item Characteristics

Item means, inter-item correlations, and item-total correlations were calculated. Item means for each of the 45 items ranged from 1.9-3.5. Inter-item correlations ranged from -.51 to .61. Item-total correlations ranged from .18-.59. (See Appendix R)

Reliability

Internal consistency. The internal consistency of the 45-item scale and 4 subscales was calculated using Cronbach alpha. The 45-item scale demonstrated excellent internal consistency with an alpha coefficient of .89. The 4 subscales also demonstrated adequate internal consistency with coefficient alphas ranging from .76 to .83. Coefficient alphas are presented in Table 4. Coefficient alphas remained consistent with those obtained during the phase 2 administration.

Test-Retest. Forty-seven caregivers completed the measure again two weeks later following the initial administration to examine the temporal stability of the FEAQ. The FEAQ demonstrated adequate test-retest reliability with a correlation coefficient of .78. The correlation coefficients of the FEAQ subscales ranged from .60 to .77 (see Table 4). Demographics of the Retest sample are presented in Table 5.

Table 4. Internal Consistency and Test-Retest Reliability of the 45-item FEAQ

	Coefficient α	**Test-retest**
Factor 1: Healthy Behaviors	.83	.77
Factor 2: Unhealthy Behaviors	.80	.60
Factor 3: Mealtime Routines	.76	.69
Factor 4: Physical Activity	.77	.74
FEAQ Total Scale	.89	.78

Validity

Concurrent Validity. It was hypothesized that the frequency of health promoting family behaviors as measured by the FEAQ would discriminate between overweight and healthy weight children. Binary logistic regression was used to determine if caregivers' responses on the FEAQ

Table 5. Demographic Characteristics of the Retest Sample

	Frequency (n=47)	Percentage
Caregiver Age	*M*= 39.6 (6.3)	
26-30	4	8.9
31-35	7	15.6
36-40	15	33.3
41-49	15	33.3
50-59	4	8.9
Caregiver Gender		
Male	9	21.4
Female	33	78.6
Ethnicity		
White	1	2.1
Black	3	6.4
Hispanic	43	91.5
Child's Age	*M*= 10.7 (1.8)	
6	3	6.4
7	3	6.4
8	1	2.1
10	2	4.3
11	18	38.3
12	20	42.6
Child's gender		
Male	103	44.2
Female	130	55.8
Child zBMI[a]	*M*= .83 (1.1)	
Child BMI Percentile[a]	*M*=72.1 (30.1)	
Child Weight Classification[a]		
Underweight	1	2.1
Healthy Weight	18	38.3
Overweight	11	23.4
Obese	12	25.5
SES Level		
I	2	4.3
II	18	38.3
III	13	27.7
IV	7	14.9
V	2	4.3

Note: [a]Based on measured height and weight
[b]Based on CDC weight classifications

were related to the likelihood that their children were healthy weight or overweight. As only one child was in the underweight range, the underweight participant was excluded from the analysis. Children with a BMI at or above the 85th percentile were considered to be overweight/obese and children with a BMI below the 85th percentile were considered to be of a healthy weight. Binary logistic regression was run with weight classification (healthy weight or overweight/obese) as the criterion or dependent variable and FEAQ total score as the predictor or covariate. The results indicated that for every point increase in score on the FEAQ (higher scores indicated greater frequency of healthy family behaviors) there was a 2.8% decreased likelihood of being overweight/obese; (OR) = .972 (95% CI .95 to .99) $p < .001$ (See Table 6). The model correctly predicted the weight classification of 62.9% of the participants (see Table 7).

Exploratory correlation analyses were run to determine if anthropometrics were significantly correlated with the subscales and total score of the FEAQ. Results indicated that the Physical Activity Habits Scale of the FEAQ was inversely correlated to weight, BMI, zBMI, and BMI percentile (see Table 8). The Healthy Family Behaviors and FEAQ total score were inversely correlated to weight, BMI, and zBMI, but not BMI percentile. The Mealtime Routines subscale was inversely correlated with weight and BMI, while the Unhealthy Family Behaviors scale was only inversely correlated to BMI. Pearson correlation coefficients ranged from -.42 to -.14. This suggests that caregivers' report of the frequency of family physical activity habits and healthy family behaviors is most strongly associated with estimates of body fatness in children. Interestingly Unhealthy Family Behaviors and Mealtime Routines were not correlated with estimates of body fatness standardized for age and gender.

Convergent validity. The FEAHQ, APQ, CRQ, ECBI and were used to assess the convergent validity of the FEAQ. The second hypothesis stated that the frequency of family

Table 6: FEAQ as a Predictor of Weight Classification

Predictor	***β***	**SE *β***	**Wald's χ^2**	***df***	***p***	**e^{β} (Odds Ratio)**
FEAQ	-.03	.01	12.8	1	.00	.972

Test	**χ^2**	***df***	***p***
Overall model evaluation			
Likelihood ratio test	262.2		
Cox & Snell R Square	.07		
Nagelkerke R Square	.09		
Goodness-of-fit test			
Hosmer& Lemeshow	3.93	8	.86

Table 7: Classification Table

	Predicted Weight Classification		**Percentage Correct**
	Healthy Weight	**Overweight/Obese**	
Healthy Weight	90	25	78.3
Overweight/Obese	50	37	42.5
Total			62.9

health promoting behaviors as measured by the FEAQ would show a strong inverse correlation with family obesogenic behaviors as measured by the Family Eating and Activity Habits Questionnaire (FEAHQ). Results indicated that the FEAQ total score was inversely correlated with child, mother, and father Activity Level and Stimulus Exposure, as well as child and mother Eating Style. Contrary to hypotheses, father Eating Related to Hunger was positively correlated with the FEAQ total score. Additional exploratory analyses of the FEAQ and FEAHQ were conducted. The Physical Activity Habits subscale of the FEAQ was only significantly correlated with child Activity Level subscale of the FEAHQ (r = -.20, p < .01) and father Eating Related to Hunger (r = .17, p < .05). Healthy Family Behaviors was inversely correlated with child, mother, and father Activity Level and Stimulus Exposure, but was not correlated with Eating Related to Hunger or Eating Style. Unhealthy Family Behaviors was inversely correlated with child,

mother, and father Activity Level, Stimulus Exposure, and Eating Style, but was not correlated with Eating Related to Hunger. Correlations between the Mealtime Routines and FEAHQ subscales yielded mixed results (see Table 8). Thus, the FEAQ was not as strongly associated with the FEAHQ and its subscales as anticipated. This may be due to a number of differences in format of questions as well as limited psychometric support for the FEAHQ.

The third hypothesis stated that the frequency of family health promoting behavior as measured by the FEAQ would be positively correlated with the frequency of positive parenting behaviors and parent involvement as measured by the Alabama Parenting Questionnaire (APQ). Results indicated that the FEAQ total score was positively correlated with the Parental Involvement subscale ($r = .52$, $p < .01$) and the Positive Parenting subscale ($r = .31$, $p < .01$) of the APQ. Further exploratory analyses demonstrated that the Poor Monitoring/Supervision and Inconsistent Discipline subscales of the APQ were negatively correlated with the FEAQ (see Table 8). Corporal Punishment and Other Discipline practices did not appear to be significantly correlated with the FEAQ, expect corporal punishment demonstrated a weak inverse correlation with mealtime routines.

The fourth hypothesis posited that the frequency of health promoting family behaviors as measured by the FEAQ would be positively correlated with the frequency of child routines as measured by the Child Routines Questionnaire (CRQ). Results indicated a significant positive correlation between FEAQ total scores and CRQ total scores ($r = .51$, $p<.01$). The subscales of the FEAQ and CRQ also demonstrated significant positive correlations. Correlation coefficients ranged from .14 to .66 (see Table 8). The only subscales to not be significantly correlated were the Physical Activity Habits subscale of the FEAQ and Homework Routines subscale of the CRQ ($r =.10$, ns). Mealtime Routines as measured by the FEAQ was strongly correlated with Daily Living Routines suggesting that these constructs are closely related.

The fifth hypothesis stated that the frequency of health promoting family behaviors as measured by the FEAQ will be inversely correlated with the intensity of child behavior problems and number of perceived conduct problems as measured by the Eyberg Child Behavior Inventory (ECBI). Results indicated a significant negative correlation between the FEAQ total score and the ECBI Intensity score ($r = -.40$, $p < .01$) and the ECBI Problem score ($r = -.42$, $p < .01$). Additional exploratory analyses were conducted to determine if the subscales of the FEAQ were also significantly correlated with the intensity and problem subscales of the ECBI. The Problem subscale was inversely correlated with all subscales of the FEAQ (see Table 8). The Intensity subscale was inversely correlated with all subscales of the FEAQ except the Physical Activity Habits subscale.

Overall, the FEAQ was correlated in the expected direction with measures of parenting behavior, family routines, child conduct problems, anthropometrics, and family eating and physical activity habits. This provides initial support for convergent validity of the FEAQ.

As the preliminary hypotheses were supported, coefficients of determination (adjusted r^2) were calculated to account for the amount of shared variance between scores described in each hypothesis. Adjusted R^2s were calculated for the FEAQ total and CRQ total, ECBI Intensity and Problem scale, APQ Positive Parenting and Parental Involvement subscale, FEAHQ child subscales (see Table 9). Analyses revealed the FEAQ shared the greatest amount of variance with the CRQ and Parental Involvement subscales of the APQ. This suggests that constructs measured by these measures are somewhat related. The FEAQ was less closely related to the ECBI subscales and FEAHQ child Activity Level. The adjusted r^2 values suggest that the FEAQ measures independent constructs from the APQ Positive Parenting subscale and FEAHQ Stimulus Exposure and Eating Style subscales.

Table 8. Correlation Coefficients of the FEAQ and Validation Measures

Validation Measures	FEAQ Healthy Family Behaviors	FEAQ Unhealthy Family behaviors	FEAQ Mealtime Routines	FEAQ Physical Activity Habits	FEAQ Total
Estimates of Body Fatness					
Weight	-.23**	--	-.37**	-.36**	-.33**
BMI	-.22**	-.18*	-.32**	-.42**	-.36**
zBMI	-.14*	--	--	-.28**	-.22**
BMI Percentile	--	--	--	-.20*	--
FEAHQ: Child					
Activity Level	-.32**	-.30**	-.26**	-.20**	-.38**
Stimulus Exposure	-.22**	-.28**	-.14*	--	-.26**
Eating Related to Hunger	--	--	--	--	--
Eating Style	--	-.47**	-.14*	--	-.29**
FEAHQ: Mother					
Activity Level	-.33**	-.22**	--	--	-.28**
Stimulus Exposure	-.14*	-.19**	--	--	-.15*
Eating Related to Hunger	--	--	.17*	--	--
Eating Style	--	-.30**	--	--	-.16*
FEAHQ: Father					
Activity Level	-.18*	-.17*	-.22**	--	-.21**
Stimulus Exposure	-.14*	-.19**	--	--	-.15*
Eating Related to Hunger	--	--	.16*	.17*	.15*
Eating Style	--	-.17*	--	--	--
Alabama Parenting Questionnaire					
Parent Involvement	.47**	.32**	.45**	.34**	.52**
Positive Parenting	.26**	.22**	.29**	.15*	.31**
Poor Monitoring/ Supervision	-.17**	-.25**	-.46**	-.26**	-.35**
Inconsistent Discipline	-.20**	-.43**	-.25**	-.24**	-.39**
Corporal Punishment	--	--	-.17**	--	--
Other Discipline Practices	--	--	--	--	--
Child Routines Questionnaire					
Daily Living Routines	.50**	.35**	.66**	.28**	.57**
Household Responsibilities	.32**	.38**	.23**	.14*	.38**
Discipline Routines	.30**	.27**	.34**	.22**	.37**
Homework Routines	.20**	.28**	.19**	--	.27**
CRQ Total Score	.42**	.38**	.47**	.26**	.51**
Eyberg Child Behavior Inventory					
Intensity Total	-.24**	-.53**	-.17**	--	-.40**
Problem Total	-.28**	-.44**	-.19**	-.28**	-.42**

Note: The table values reported are Pearson coefficients r

*Correlation Significant at the $p < .05$ level; **Correlation Significant at the $p < .01$ level

Table 9. Coefficients of Determination (adjusted r^2)

Validation Measures	FEAQ Total
FEAHQ Child	
Activity Level	.14
Stimulus Exposure	.07
Eating Style	.08
Alabama Parenting Questionnaire	
Parental Involvement	.26
Positive Parenting	.09
Child Routines Questionnaire Total	.26
Eyberg Child Behavior Inventory	
Intensity subscale	.16
Problem subscale	.18

DISCUSSION

Obesity rates in children have tripled since the 1970's (CDC, 2006). The changing family environment has been shown to be related to this growing health concern and is often a focus of treatment (Birch & Fisher, 1998; Gable & Lutz, 2000; M Golan & S Crow, 2004). The purpose of the current study was to develop a psychometrically sound caregiver-report measure of family and child behaviors related to obesity in children. The measure is intended for eventual use in the assessment and treatment of overweight children ages 5-12. The Family Eating and Activity Questionnaire (FEAQ) contains four subscales measuring health promoting family behaviors, obesogenic behaviors, mealtime routines, and family physical activity habits. Obesogenic behaviors are reverse scored so that higher scores on the FEAQ reflect greater frequency of health promoting behaviors. The development of the FEAQ improves upon the development of pervious measures of family health behaviors by obtaining caregiver input of family eating and physical activity routines as well as barriers to healthy eating and physical activity. The FEAQ is an easily completed questionnaire that measures both caregiver and child behaviors and incorporates physical activity and eating habits into one questionnaire.

The current study evaluated the psychometric properties of the FEAQ. Logistic regression analyses examined the concurrent validity of the FEAQ to assess whether the FEAQ total score was related to decreased likelihood of the child being overweight or obese. Caregiver rating on the FEAQ was found to predict decreased likelihood of the child being classified as overweight or obese. This indicates that families reporting higher frequencies of health promoting behaviors are significantly less likely to have children classified as overweight or obese. Specifically, for every point increase in the FEAQ total score the child is 2.3% less likely to be overweight or obese. This finding is particularly important as obese adults have been

shown to over report physical activity levels and underreport dietary intake (Lichtman et al., 1992). This also improves upon the psychometrics of other measures which did not assess whether their measure was related to the likelihood of being overweight or obese, but rather assessed whether there was a significant difference in ratings by caregivers with healthy weight and obese children.

Further analyses revealed that the FEAQ total score had a significant inverse correlation with weight, BMI, and standardized BMI (zBMI), but not BMI percentile. This suggests that lower scores on the FEAQ were associated with increased estimates of body fatness. Of all the subscales, the FEAQ physical activity scale was the most highly correlated with zBMI and was also the only subscale to be significantly correlated with BMI percentile. This suggests that caregivers' report of the frequency of family physical activity habits and healthy family behaviors is most strongly associated with estimates of body fatness in children. It should be noted that correlation coefficients were small to medium (mean r =.29) (Cohen, 1988). However, in comparison to other studies which correlated paper and pencil measures to anthropometric data, the correlation coefficients were relatively strong (Ihmels et al., 2009). Interestingly, Unhealthy Family Behaviors and Mealtime Routines were not correlated with estimates of body fatness standardized for age and gender, though were correlated with child BMI. These results should be interpreted with caution as BMI percentile and adiposity are not linearly related (Freedman et al., 2005). This lack of linear relationship could explain the low to moderate correlations found between anthropometrics and caregiver responses on the FEAQ.

The current study found that the FEAQ demonstrated evidence of convergent validity with questionnaires measuring constructs of family behaviors thought to be related to obesity in children. Caregiver ratings of family eating and physical activity behaviors on the FEAQ were correlated with caregiver report of family eating and physical activity behavior, parenting

behavior, child routines, and conduct problems, and as measured by the Family Eating and Activity Habits Questionnaire (FEAHQ), Alabama Parenting Questionnaire (APQ), Child Routines Questionnaire (CRQ), and Eyberg Child Behavior Inventory (ECBI), respectively. The FEAQ was found to be negatively correlated with child Activity Level, Stimulus Exposure, and Eating Style as measured by the FEAHQ, which was in the expected direction, as the higher scores on the FEAHQ indicate more obesogenic behaviors. However, the FEAQ was not correlated with the Eating Related to Hunger subscale of the FEAHQ. This lack of association may be because eating related to hunger is a difficult construct for caregivers to assess in their children as they may not be aware of their child's internal states such as hunger, thus unable to accurately report whether their child stops eating when satiated (Birch & Fisher, 1998; Worobey, Lopez, & Hoffman, 2009).

Additionally, given that these measures were both designed to measure family behaviors related to eating and physical activity, the strength of the correlations and the amount of shared variance between the FEAQ and FEAHQ were much lower than expected. There are several possible explanations for this weak association. First, the responses to questions on the FEAQ and the FEAHQ were in different formats, the FEAQ required caregivers to respond on a Likert scale and the FEAHQ asked for open ended responses (e.g. How many hours per week on average do you watch television and/or play on the computer?). Despite asking fairly specific questions, caregivers did not respond in a specific way on the FEAHQ. For example, instead of reported hours spent exercising, caregivers reported number of minutes or number of times they exercised in a week. Some caregiver responded with answers such as, "a lot" or "several hours," which could not be converted into hours.

As hypothesized family eating and physical activity behaviors as measured by the FEAQ were positively correlated with the Parent Involvement and Positive Parenting subscales of the

APQ. The FEAQ also demonstrated an inverse relationship with the Poor Monitoring/Supervision and Inconsistent Discipline subscales, suggesting that higher rates of health promoting behaviors were associated with lower rates of poor supervision and inconsistent discipline. The FEAQ exhibited significant shared variance with the APQ Parental Involvement (26%) and Positive Parenting (9%) subscales. Caregivers who reported a high degree of involvement in their children's activities and positive parenting practices were also more likely to report a higher frequency of healthy family behaviors. The moderately high variance shared between parental involvement and health promoting family behaviors suggests that these constructs are moderately related. This is consistent with other studies that show improvements in children's physical activity level is dependent upon their parents' increases in activity level (Kalakinis et al., 2001). The relatively low degree of shared variance between the FEAQ and Positive Parenting subscale suggests that the FEAQ is measuring something other than caregiver reported positive parenting behaviors. Further studies should evaluate if particular parenting behaviors are related to weight classification in children.

The FEAQ was found to be positively correlated with child routines as measured by the CRQ. The mealtime routines subscale was strongly associated with the Daily Living Routines subscale of the CRQ suggesting that these maybe measuring related constructs. Interestingly, the only subscales that were not significantly correlated were the Homework Routines and the Physical Activity Habit subscales. The CRQ and FEAQ demonstrated a significant overlap in variance (26%) between child routines as measured by the CRQ and family eating and physical activity behaviors as measured by the FEAQ. This suggests that these constructs are moderately related.

As expected the FEAQ was inversely correlated with the ECBI Intensity and Problem scales. This indicates lower scores on the FEAQ are related to higher intensity of conduct

problems and greater number of child behavior problems reported by caregivers. This is supported by the literature that suggests that overweight children tend to have more behavioral problems than healthy weight children (Stradmeijer et al., 2000). Interestingly, the Physical Activity Habits subscale was not correlated with the Intensity scale of the ECBI. The ECBI and FEAQ demonstrated a significant overlap in variance (16%) between child conduct problems as measured by the ECBI and family eating and physical activity behaviors as measured by the FEAQ; however, this suggests that the ECBI and FEAQ are measuring separate constructs.

Overall, the FEAQ which was shown to correctly predict weight classification, also demonstrated significant correlations with measures of parenting behavior, routines, and child behavior problems. The degree of shared variance between the FEAQ and these measures underscores the importance of the role of parents in promoting healthy behaviors in their children. In this study parents who engaged in more positive parenting practice and were more involved in their children's activities also reported more healthy family behaviors. Though this study did not examine the relationship between parenting practices and child conduct problems, other studies have shown parenting practices to be strongly predictive of child conduct problems (Frick et al., 1999). Perhaps, obesity and child behavior problems are both symptoms of a problem in the psychosocial environment of the family, as described by Story (1999). Thus, parenting practices may be crucial to making changes in the psychosocial environment to facilitate a healthy environment for the overweight child (Epstein et al., 1987).

The current study also evaluated the reliability of the FEAQ. The FEAQ total scale score demonstrated very good internal consistency with a coefficient alpha of .89 and good temporal stability with a correlation coefficient of .78. The subscales of the FEAQ also demonstrated good internal consistency with coefficient alphas ranging from .76 to .83 as well as test-retest reliability with correlation coefficients ranging from .60 to .77. The FEAQ demonstrated similar

internal consistency to the FEAHQ which reported an average coefficient α of .83 (Golan & Weizman, 1998).

One limitation of the current measure is that self reported and proxy reports of physical activity and eating habits is often flawed (Bothwell et al., 2009; Prince et al., 2008; Singh et al., 2009). This is noteworthy, because despite this inherent bias in self-report and proxy report data, the FEAQ was still found to discriminate between physiological measures of overweight/obese and healthy weight children. This provides further support for the validity of the FEAQ. Future research is needed to establish the convergent validity of the FEAQ with measures of physical activity and eating behaviors that do not require self-report or parent report such as accelerometer data or video observation of parent behavior and child behavior at mealtimes.

Finally, further research is needed to determine if the measure is sensitive to changes in family behaviors that occur as a response to family focused treatment of obesity. It is expected that an increase in total scores on the FEAQ would be observed in participants who lose weight or maintain weight during treatment. Overall, the results of the current study provide preliminary evidence for the psychometric properties of the FEAQ as a promising measure of family eating and physical activity behaviors. The FEAQ was shown to discriminate between overweight or obese and healthy weight children and was correlated with measures which assess constructs that are thought to be closely related constructs. The FEAQ also was shown to have adequate internal consistency and test-retest reliability.

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APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE

Location _____ #_____

ABOUT YOU AND YOUR FAMILY

Please fill out the following background information about yourself and your family. Read each item carefully.

Your age: _____ years

Ethnicity:

_____ White
_____ Black
_____ Hispanic
_____ Asian
_____ Native American
_____ Pacific Islander
_____ Other: _____

Marital Status:

_____ Never Married
_____ Married
_____ Separated
_____ Divorced
_____ Widowed

Education: What is the highest level of education completed by:

Yourself
_____ 6th grade or less
_____ Junior high school (7th-9th grade)
_____ Partial high school (10th, 11th grade)
_____ High school graduate
_____ Partial college (at least 1 year) or specialized training
_____ Standard college or university graduate
_____ Graduate professional degree (Master's, Doctorate)

Your Spouse
_____ 6th grade or less
_____ Junior high school (7th -9th grade)
_____ Partial high school (10th, 11th grade)
_____ High school graduate
_____ Partial college (at least 1 year) or specialized training
_____ Standard college or university graduate
_____ Graduate professional degree (Master's, Doctorate)

Income: What is the total annual income of your household? (Combine the income of all the people living in your house right now.)

_____ $0 -- $ 4,999
_____ $ 5,000 -- $ 9,999
_____ $10,000 – $14,999
_____ $15,000 -- $24,999
_____ $25,000 -- $34,999
_____ $35,000 -- $49,999
_____ $50,000 -- $74,999
_____ $75,000 -- $99,999
_____ $100,000 and above

Occupation: Please provide your job title or position, NOT the name of your employer. For example, if you are a teacher at Lee High School, please state "high school teacher". If you are retired, please state "retired" as well as your prior occupation. If you do not work outside the home, state "unemployed".

What is your occupation? _____
(please be specific)

What is your spouse's occupation?_____
(please be specific)

Family:
How many adults (over 18) live in your household?_____
How many children (under 18) live in your household? _____

ABOUT YOU AND YOUR CHILD

Answer the following questions about only one of your children who is between the ages of 6 and 12 while completing the rest of the questions.

Child's Initials _____
Child's Age _____

What is your child's sex? _____ Girl _____ Boy
Child's height: _____feet _____inches
Child's weight: _____ pounds

Is your child overweight? (please circle one) YES NO Don't know

Does your child have any medical problems? Please check one of the following:

- ❑ None
- ❑ Allergies : _____
- ❑ Asthma
- ❑ Cystic Fibrosis
- ❑ Diabetes Mellitus Type 1
- ❑ Diabetes Mellitus Type 2
- ❑ Insulin Resistance
- ❑ Hyperlipidemia
- ❑ Hypertension
- ❑ Hypothyroidism
- ❑ Sickle Cell Disease
- ❑ Other: _____

Please circle yes or no next to the type of childcare in which your child is involved. If yes, please indicate number of days per week and hours per day:

Primary caretakers:	Y N	Days per week: _____	Hours per day: _____
School:	Y N	Days per week: _____	Hours per day: _____
Other: _____	Y N	Days per week: _____	Hours per day: _____

APPENDIX B

SURVEY OF FAMILY EATING AND PHYSICAL ACTIVITY HABITS

To the caregiver,

We are in the process of developing a questionnaire about regular routines children have and parenting behaviors surrounding meal time, snacking, and physical activity. We are asking you to help generate items that may be included in this questionnaire. Your help is greatly appreciated.

A **routine** consists of things children do regularly in the same way. Most routines are scheduled to occur on a regular basis such as, daily (every day after school) or weekly (every Sunday morning). An adult may or may not be involved, but often it is monitored in some way by an adult.

Ex: Breakfast routine

Time: 7:00 am *Adult present:* Mother

Typical sequence of breakfast routine may include:

1. Mom prepares cereal and fruit
2. Child sets the table
3. Family sits to eat together
4. Prayer is said
5. Family eats
6. Child asks to be excused
7. Child clears their dishes from the table

Sample items generated from this routine:

- My child eats breakfast at the same time each night.
- The family eats breakfast together daily.
- My child has certain responsibilities to complete at each day at mealtime.

Ex: Physical Activity Routine

Time: Afterschool *Adult present:* Babysitter

Typical sequence of Physical Activity Routine may include:

1. Child arrives home from school
2. Child goes outside to play for 60 minutes
3. Babysitter participates in activities with child
4. Child cleans up toys
5. Child returns inside to do homework

Sample items generated from this routine:

- My child participates in physical activity for 60 minutes each day after school.
- My child engages in physical activity prior to homework each day.
- A caregiver participates I physical activity with my child daily.

Please list routines children age 5 to 12 have during each of the following time periods. Think about the activities children complete during these times. List activities that occur in at a regular time or in the same order each time. Please note if a caregiver is present for a particular routine and if you have difficulty with your child's behavior during a routine.

Please describe the breakfast time routine at home. (Please indicate if child eats breakfast at school)

Time: _____

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During Routine: _____

_____

Please describe the dinnertime routine at home.

*Time:*_____

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During Routine: _____

_____

Please describe your child's snack time routine

Time: _____

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During Routine: _____

_____

Please describe your family's mealtime rules

_____

_____

_____

_____

_____

Caregiver: _____

Does your child have problems following rules? Describe: _____

_____

Please describe meal time discipline/rewards at home.

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During Routine: _____

_____

Please describe your family's weekend meals/eating routines

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During Routine:_____

Please describe your child's physical activity at home

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During family physical activity: _____

_____

Please describe your child's sports routines.

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During Routine: _____

_____

Please describe your meal planning routines

_____

_____

_____

_____

_____

Caregiver: _____

Child's Involvement in Routine: _____

_____

Please describe your family's eating out routines

_____

_____

_____

_____

_____

Caregiver: _____

Typical Child Behavior During Routine: _____

_____

Please describe the obstacles that get in the way of your child/family eating healthy

_____

_____

_____

_____

_____

Please describe the obstacles that get in the way of your child/family participating in physical activity on a regular basis

_____

_____

_____

_____

_____

Please describe any social problems your child has (for example does your child get teased for their appearance). Do these social problems interfere with your child's eating or physical activity habits?

_____

_____

_____

_____

_____

_____

When and under what circumstances is your child most likely to make unhealthy food choices or be inactive?

_____

_____

_____

_____

_____

What activities does your child spend the most time doing each day?

_____

_____

_____

_____

_____

What things help your child to eat healthy foods and be physically active?

_____

_____

_____

_____

_____

APPENDIX C

CONSENT FORM

1. **Study Title:** Development and initial Validation of the Child Eating Behaviors and Physical Activity Questionnaire.

2. **Performance Sites:** Children and their parents will be recruited on a voluntary basis from private physician waiting rooms, LSU, and private and public schools.

3. **Names and Telephone Numbers of Investigators:** If you have questions concerning this form or the study, please contact Mary Lou Kelley, Ph.D. at (225) 578-4113 and Jenny Palcic at (225)-247-3226 on Monday through Friday, 8:00 a.m. to 5:00 p.m.

4. **Purpose of the Study:** The purpose of this study is to develop a questionnaire to measure the eating behaviors and physical activity of children.

5. **Who is involved**: Fathers, mothers, and caregivers of children between the ages of 5 and 12 are eligible for inclusion in the study.

6. **Number of Subjects:** 100

7. **What is involved:**
   Mothers/fathers/caretakers will be asked if they would be interested in participating in the study. Only those with signed consent forms will be asked to participate in the study. If you agree to voluntarily participate in the study, you will spend approximately 20 to 40 minutes completing a demographic questionnaire and a questionnaire that will ask you to provide information about your child's eating and physical activity behaviors and, as well as, your parenting behavior related to these activities. If anyone has difficulty reading the forms, the researchers will provide assistance.
   The study is completely confidential and you will not be linked to the data in any way. You have the option of providing your email address if you would like to be contacted about future research opportunities or if you would like to be contacted about the results of the study. This is completely optional and is not required. At the end of the study, any identifying information will be destroyed. You will have no further obligation after you complete the questionnaires.

8. **Benefits:** Completion of the project will help us to understand the eating and physical activity habits of children. This will aid in determining behaviors related to obesity and can assist health care professionals in providing quality health care and preventative services to children and their families.

9. **Risks/Discomforts:** There are no known risks to participating. Should you experience distress during participation in the study; the investigators can provide mental health resources to you.

10. **Right To Refuse:** Participation in this study is voluntary. You may change your mind and withdraw from the study at any time without penalty or loss of any benefit to which you may otherwise be entitled.

11. **Privacy:** The information gathered on you and your child will be kept confidential. Neither of your names will appear on any of the questionnaires or any other information. Your information will be identified by a code rather than a name. Any records with your name or your child's name will be maintained in a locked file cabinet in the research lab of Dr. Kelley at Louisiana State University. Subject identity will be kept confidential unless release is required by law.

12. **Financial Information:** There is no cost for participation in the study, nor is there any compensation to the subjects for participation.

13. **Removal:** Subjects who fail to complete the questionnaires will be removed from the study.

14. **Signatures:**

"This study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Matthews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a signed copy of this consent form."

_____ _____

Signature of Parent/Guardian Date

"The study subject has indicated to me that he/she is unable to read. I certify that I have read this consent form to the subject and explained that by completing the signature line above the subject has agreed to participate."

_____ _____

Signature of Reader Date

APPENDIX D

EXPERT JUDGMENT QUESTIONNAIRE

Dear Colleague,

We are currently in the process of developing the Family Eating and Activities Questionnaire to address family behaviors related to obesity in children ages 5-12. These behaviors may either increase a child's vulnerability to obesity or decrease a child's risk for obesity.

Caregivers will rate the items using a Likert-type scale as follows:

0 = Never
1 = Rarely
2 = Sometimes
3 = Often
4 = Nearly Always
N/A= Not Applicable to my child

In order to evaluate each item, please read each item and:

1. Indicate if the item is clear/understandable and concise/short as possible by circling yes or no.
    a. if the item is unclear or too long, please revise the item on the line provided underneath the item. Please revise the item so that they are readable by caregivers of all education levels.

2. Indicate if the item is relevant to the domain of the adolescent's daily routines by circling either Yes or No. In other words, do you feel this behavior is related to obesity in children?

3. If there are any duplicated items, please cross off the lease clear item, retaining the most understandable.

4. If there are any additional routines not included in the list, please list them at the end. Following the revision of these items, a representative sample of caregivers of children ages 5-12 will rate the frequency of each item.

Thank you so much for your help in the development in this measure. Please return your revisions by the due date below.

Sincerely,

Jenny Palcic **DUE DATE:**

My Child…	**Clear/ Concise?**	**Relevant?**
…eats breakfast	Yes No	Yes No
…fixes his/her plate for meals	Yes No	Yes No
… eats meals with the family	Yes No	Yes No
…eats in the car	Yes No	Yes No
…helps at mealtime (e.g. set the table, clear the table, wash dishes)	Yes No	Yes No
…My child chooses what he/she want to eat at meals	Yes No	Yes No
…watches television during meals	Yes No	Yes No
…eats whole grains at breakfast	Yes No	Yes No
…eats protein at breakfast	Yes No	Yes No
…skips meals	Yes No	Yes No
…does not eat breakfast	Yes No	Yes No
…drinks juice or milk	Yes No	Yes No
…eats breakfast at school	Yes No	Yes No
…eats lunch at school	Yes No	Yes No
… eats homemade meals	Yes No	Yes No
…prepares their own meals	Yes No	Yes No

…serves them self at meals	Yes No	Yes No
… asks to be excused from the table	Yes No	Yes No
…talks with the family during mealtime	Yes No	Yes No
…does homework during dinner	Yes No	Yes No
…throws a fit if they dislike what is served for meals	Yes No	Yes No
…meals at a routine time	Yes No	Yes No
…misbehaves during meals	Yes No	Yes No
…has sporting events that interfere with having routine meal times	Yes No	Yes No
…eats dessert after dinner	Yes No	Yes No
…eats out at restaurants	Yes No	Yes No
…eats fast food	Yes No	Yes No
…eats an afternoon snack	Yes No	Yes No
…prefers sweets for snack	Yes No	Yes No
…prefers something salty for snack	Yes No	Yes No
…Eats healthy snacks	Yes No	Yes No
…eats snacks and meals at the same place (i.e. dinner table)	Yes No	Yes No
…is assisted with making healthy food choices	Yes No	Yes No

… eats while doing homework	Yes No	Yes No
…can eat anytime they want	Yes No	Yes No
…drinks soda	Yes No	Yes No
…eats fast food for snack	Yes No	Yes No
…is expected to have good manners at mealtime	Yes No	Yes No
… is expected to eat a serving from each food group at dinner	Yes No	Yes No
…is expected to try at least one bite of everything on their plate	Yes No	Yes No
…must completely finish dinner to get dessert	Yes No	Yes No
…Television, electronics, reading materials, etc are not allowed at the dinner table	Yes No	Yes No
…has rules for mealtimes	Yes No	Yes No
…asks for seconds	Yes No	Yes No
…stays seated at the table	Yes No	Yes No
…does not talk with their mouthful	Yes No	Yes No
…clears their dishes from the table	Yes No	Yes No
…eats with utensils (fork, spoon, etc.)	Yes No	Yes No
…says please and thank you	Yes No	Yes No

… eats when they are hungry	Yes No	Yes No
…loses privileges based on mealtime behavior	Yes No	Yes No
…gets dessert as a reward	Yes No	Yes No
…is well behaved during mealtimes	Yes No	Yes No
…is expected to finish everything on their plate	Yes No	Yes No
… snacks after dinner	Yes No	Yes No
…goes out to eat at a restaurant during the weekend	Yes No	Yes No
…My child is a picky eater	Yes No	Yes No
…plays outside	Yes No	Yes No
…plays with neighborhood friends	Yes No	Yes No
…participates in sports (swimming, football, gymnastics, dance, etc.)	Yes No	Yes No
…spends free time watching TV, playing computer game, or playing video games	Yes No	Yes No
…gets upset when they don't get the items they want at the store	Yes No	Yes No
…My child is physically active for at least 30 minutes	Yes No	Yes No
…walks to school	Yes No	Yes No
…can play outside by themselves	Yes No	Yes No
…gets most of their physical activity at school	Yes No	Yes No

…doesn't have time for physical activity	Yes No	Yes No
…prefers indoor activities over outdoor	Yes No	Yes No
…has a limit for amount of time spent on the computer, TV, and/or video games	Yes No	Yes No
…is required to play on at least one sports team	Yes No	Yes No
…participates in physical activities with parents/caregivers	Yes No	Yes No
…assists with the grocery shopping	Yes No	Yes No
…eat prepackaged / frozen meals	Yes No	Yes No
…is influenced to eat unhealthy foods by other kids	Yes No	Yes No
…does not like vegetables	Yes No	Yes No
…does not play outside without a parent/caregiver	Yes No	Yes No
…does not have time to play outside	Yes No	Yes No
…does not have time to participate in sports	Yes No	Yes No
…eats when they are bored	Yes No	Yes No
…sneaks food	Yes No	Yes No
…eats while standing	Yes No	Yes No
…asks permission to eat food	Yes No	Yes No

…complains of hunger	Yes No	Yes No
…eats when not hungry	Yes No	Yes No
…grazes on food	Yes No	Yes No
…eats very quickly	Yes No	Yes No
…eats five servings of fruits and vegetables a day	Yes No	Yes No
…pays attention to signs of hunger	Yes No	Yes No
…pays attention to signs of fullness	Yes No	Yes No
…hangs out in the kitchen	Yes No	Yes No
…eats unhealthy foods at school	Yes No	Yes No
…buys food from vending machines	Yes No	Yes No
I…	**Clear/ Concise?**	**Relevant?**
… make a shopping list before going to the store	Yes No	Yes No
…wait until the last minute what to decide what to cook	Yes No	Yes No
…use fresh ingredients in our meals	Yes No	Yes No
…do not have time to plan healthy meals	Yes No	Yes No
… meals are planned ahead of time	Yes No	Yes No
…have a work schedule that prevents preparing home cooked meals	Yes No	Yes No

…have a work schedule that prevents my child from being able to participate in sports	Yes No	Yes No
… model healthy eating habits for my child	Yes No	Yes No
…give my child a healthy alternative when he/she asks for junk food	Yes No	Yes No
…is teased	Yes No	Yes No
…avoids spending time with other kids	Yes No	Yes No
…keep unhealthy food out of sight of my child	Yes No	Yes No
…keep sweets in the house	Yes No	Yes No
…keep chips in the house	Yes No	Yes No
…find my child's mealtime behavior difficult to manage	Yes No	Yes No
...help my child to make healthy food choices	Yes No	Yes No
…limit my child's food intake	Yes No	Yes No
…worry about my child's weight	Yes No	Yes No
…am trying to lose weight	Yes No	Yes No
…workout , exercise, or participate in physical activity	Yes No	Yes No
…participate in physical activity with my child	Yes No	Yes No
…pack my child's lunch	Yes No	Yes No

APPENDIX E

FAMILY EATING AND ACTIVITY QUESTIONNAIRE

Please rate how often your child engaged in the following health behaviors by circling a rating ranging from 0 (almost never) to 4 (nearly always). If an item does not apply to your child due to his or her age, please mark "0".

My Child…	Rate how often your child does each of the following behaviors. 0 =Almost Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always
…eats breakfast daily	0 1 2 3 4
… eats meals by him/herself	0 1 2 3 4
…chooses what is served at mealtimes	0 1 2 3 4
…watches television during meals	0 1 2 3 4
…eats three meals a day	0 1 2 3 4
…drinks reduced fat or skim milk	0 1 2 3 4
…drinks water	0 1 2 3 4
…eats breakfast or lunch provided by school	0 1 2 3 4
…brings lunch from home	0 1 2 3 4
…puts large portions on his/her plate at meals	0 1 2 3 4
…talks with the family during mealtimes	0 1 2 3 4
…gets upset when they don't like what is served for meals	0 1 2 3 4
…eats meals at a routine time	0 1 2 3 4
…misbehaves during meals	0 1 2 3 4
…has afterschool activities that interfere with having routine meal times	0 1 2 3 4
…eats dessert after dinner	0 1 2 3 4
…eats out at restaurants	0 1 2 3 4

…eats fast food	0	1	2	3	4
…eats an afternoon snack	0	1	2	3	4
…prefers sweets for snacks	0	1	2	3	4
…prefers something salty for snacks	0	1	2	3	4
…eats meals at the table	0	1	2	3	4
…is assisted with making healthy food choices	0	1	2	3	4
… eats while doing homework	0	1	2	3	4
…can eat anytime he/she wants	0	1	2	3	4
…drinks diet sodas	0	1	2	3	4
… eats vegetables at dinner	0	1	2	3	4
…is expected to try at least one bite of everything on his/her plate	0	1	2	3	4
…must completely finish dinner to get dessert	0	1	2	3	4
…asks for more food after finishing a meal	0	1	2	3	4
…stays seated at the table	0	1	2	3	4
…eats with utensils (fork, spoon, etc.)	0	1	2	3	4
…eats only when he/she is hungry	0	1	2	3	4
…gets dessert as a reward	0	1	2	3	4
…is expected to finish everything on their plate	0	1	2	3	4
… snacks before bedtime	0	1	2	3	4
…is a picky eater	0	1	2	3	4
…plays outside	0	1	2	3	4
…plays with neighborhood friends	0	1	2	3	4
…participates in sports (swimming, football, gymnastics, dance, etc.)	0	1	2	3	4
…spends free time watching TV, playing computer games, or playing video games	0	1	2	3	4
…gets upset at the grocery store when I don't buy the foods that he /she wants	0	1	2	3	4

…is physically active for at least 30 minutes daily	0	1	2	3	4
…walks to school	0	1	2	3	4
…will play outside by themselves	0	1	2	3	4
…gets most of his/her physical activity at school	0	1	2	3	4
…doesn't have time for physical activity	0	1	2	3	4
…prefers indoor activities over outdoor activities	0	1	2	3	4
… spends a lot of time on computer, TV, and/or video game usage	0	1	2	3	4
…plays on at least one sports team	0	1	2	3	4
…participates in physical activities with parents/caregivers	0	1	2	3	4
…is influenced to eat unhealthy foods by other kids	0	1	2	3	4
…does not like vegetables	0	1	2	3	4
…eats when he/she is bored	0	1	2	3	4
…sneaks food	0	1	2	3	4
…has to ask permission to eat food	0	1	2	3	4
…complains of hunger	0	1	2	3	4
…eats very quickly	0	1	2	3	4
…eats five servings of fruits and/or vegetables a day	0	1	2	3	4
….stops eating when he/she is full	0	1	2	3	4
…eats unhealthy foods at school	0	1	2	3	4
…is teased by other children	0	1	2	3	4
…avoids spending time with other kids	0	1	2	3	4
…buys food from vending machines	0	1	2	3	4
…is offered unhealthy foods by other family members	0	1	2	3	4
…talks about healthy eating	0	1	2	3	4
…eats when he/she feels sad, mad, or nervous	0	1	2	3	4

…refuses to participate in physical activity	0 1 2 3 4
…eats frequently throughout the day	0 1 2 3 4
…frequently asks for unhealthy snacks	0 1 2 3 4
…snacks while watching television	0 1 2 3 4
…eats while on the computer	0 1 2 3 4

Please rate how often you engage in the following health behaviors by circling a rating ranging from 0 (almost never) to 4 (nearly always). If an item does not apply to you please mark "0".

I…	Rate how often you do each of the following behaviors. 0 =Almost Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always
… make a shopping list before going to the store	0 1 2 3 4
…wait until the last minute what to decide what to cook	0 1 2 3 4
…serve fresh fruits and vegetables	0 1 2 3 4
… eat vegetables	0 1 2 3 4
…do not have time to plan healthy meals	0 1 2 3 4
…have a work schedule that prevents preparing home cooked meals	0 1 2 3 4
…have a schedule prevents my child from participating in sports	0 1 2 3 4
… eat low calorie, low fat foods	0 1 2 3 4
…offer my child a healthy alternative when he/she asks for junk food	0 1 2 3 4
…keep unhealthy food out of sight of my child	0 1 2 3 4
…keep sweets in the house	0 1 2 3 4
…keep chips in the house	0 1 2 3 4
…have difficulty managing my child's mealtime behavior	0 1 2 3 4
…teach my child about healthy food choices	0 1 2 3 4
…limit my child's food intake	0 1 2 3 4

…worry about my child's weight	0	1	2	3	4
…am trying to lose weight	0	1	2	3	4
…workout , exercise, or participate in physical activity	0	1	2	3	4
…participate in physical activity with my child	0	1	2	3	4
…pack my child's lunch	0	1	2	3	4
…eat too much at meals	0	1	2	3	4
…snack too much	0	1	2	3	4
…eat even when I am not hungry	0	1	2	3	4
…serve my child's plate	0	1	2	3	4
…eat when I am sad, bored, nervous, or mad	0	1	2	3	4
…make low calorie, low fat foods when cooking for my family	0	1	2	3	4
…choose low calorie healthy options at fast food or at restaurants	0	1	2	3	4

APPENDIX F

CONSENT FORM

1. **Study Title:** Development and initial Validation of the Child Eating Behaviors and Physical Activity Questionnaire.

2. **Performance Sites:** Children and their parents will be recruited on a voluntary basis from private physician waiting rooms, LSU, private and public schools, and by undergraduates in psychology classes.

3. **Names and Telephone Numbers of Investigators:** If you have questions concerning this form or the study, please contact Mary Lou Kelley, Ph.D. at (225) 578-4113 and Jenny Palcic at (225)-247-3226 on Monday through Friday, 8:00 a.m. to 5:00 p.m.

4. **Purpose of the Study:** The purpose of this study is to develop a questionnaire to measure the eating behaviors and physical activity of children.

5. **Who is involved**: Fathers, mothers, and caregivers of children between the ages of 6 and 12 are eligible for inclusion in the study.

6. **Number of Subjects:** 500

7. **What is involved:**

Mothers/fathers/caretakers will be asked if they would be interested in participating in the study. Only those with signed consent forms can participate in the study. If you voluntarily agree to participate in the study, you will spend approximately 20 to 40 minutes completing a demographic questionnaire and a survey that will ask you to rate the frequency your child's eating and physical activity behaviors, as well as, your parenting behavior related to these activities. If anyone has difficulty reading the forms, the researchers will provide assistance.

The study is completely confidential and you will not be linked to the data in any way. You will be asked to provide your name and phone number. If you would like to be contacted about future research opportunities, you may provide your email address and/or address. Participation in future research is completely optional. Also you will be asked if you would like to be contacted about the results of the study. At the end of the study, any identifying information will be destroyed. You will have no further obligation after you complete the questionnaires.

8. **Benefits:** Completion of the project will help us to understand the eating and physical activity habits of children. This will aid in determining behaviors related to obesity and can assist health care professionals in providing quality health care and preventative services to children and their families.

9. **Risks/Discomforts:** There are no known risks to participating. Should you experience

distress during participation in the study; the investigators can provide mental health resources to you.

10. **Right To Refuse:** Participation in this study is voluntary. You may change your mind and withdraw from the study at any time without penalty or loss of any benefit to which you may otherwise be entitled.

11. **Privacy:** The information gathered on you and your child will be kept confidential. Neither of your names will appear on any of the questionnaires or any other information. Your information will be identified by a code rather than a name. Any records with your name or your child's name will be maintained in a locked file cabinet in the research lab of Dr. Kelley at Louisiana State University. Subject identity will be kept confidential unless release is required by law.

12. **Financial Information:** There is no cost for participation in the study, nor is there any compensation to the subjects for participation.

13. **Removal:** Subjects who fail to complete the questionnaires will be removed from the study.

14. **Signatures:**

"This study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Matthews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a signed copy of this consent form."

_____ _____

Signature of Parent/Guardian Date

"The study subject has indicated to me that he/she is unable to read. I certify that I have read this consent form to the subject and explained that by completing the signature line above the subject has agreed to participate."

_____ _____

Signature of Reader Date

APPENDIX G

ITEM FREQUENCIES PRIOR TO REVERSE SCORING

Items My Child…	Response Percentages				
	Almost Never	Rarely	Sometimes	Often	Nearly Always
…eats breakfast daily	1.3	1.9	11.3	14.8	70.6
…eats meals by him/herself	13.2	12.9	19.0	10.3	43.5
…chooses what is served at mealtimes	8.7	17.4	46.5	17.1	9.4
…watches television during meals	19.0	15.5	38.1	15.5	11.9
…eats three meals a day	1.0	1.6	5.2	15.2	77.1
…drinks reduced fat or skim milk	13.2	10.6	14.5	13.2	48.4
…drinks water	.6	3.2	15.5	31.1	49.5
…eats breakfast or lunch provided by school	17.7	9.0	23.9	14.5	34.8
…brings lunch from home	27.7	12.9	20.6	13.9	24.2
…puts large portions on his/her plate at meals	19.0	32.3	33.0	12.9	2.6
…talks with the family during mealtimes	1.6	1.6	9.4	31.6	55.8
…gets upset when they don't like what is served for meals	18.4	24.2	35.3	13.5	8.4
…eats meals at a routine time	3.9	7.7	13.2	36.1	38.4
…misbehaves during meals	48.1	28.4	17.1	3.2	2.9
…has afterschool activities that interfere with having routine meal times	32.6	23.9	29.0	9.4	4.8
…eats dessert after dinner	16.1	23.2	38.1	15.8	6.8
…eats out at restaurants	4.8	11.6	51.6	28.4	3.5
…eats fast food	4.2	13.5	57.1	20.6	4.5
…eats an afternoon snack	1.6	2.6	19.7	32.9	43.2
…prefers sweets for snacks	7.7	19.0	37.1	21.3	14.5
…prefers something salty for snacks	15.2	17.1	47.7	16.1	3.5
…eats meals at the table	3.5	4.2	10.6	24.2	57.1
…is assisted with making healthy food choices	6.1	4.5	30.3	41.9	17.1
… eats while doing homework	49.0	24.2	20.3	4.2	2.3
…can eat anytime he/she wants	24.2	22.6	28.1	14.5	10.0
…drinks diet sodas	63.2	19.4	11.9	2.6	1.9
… eats vegetables at dinner	6.1	8.4	27.1	32.6	25.8
…is expected to try at least one bite of everything on his/her plate	6.5	8.1	16.1	26.5	42.6
…must completely finish dinner to get dessert	19.7	14.8	16.1	24.8	24.2
…asks for more food after finishing a meal	12.3	18.4	46.5	17.7	5.2
…stays seated at the table	4.2	7.1	15.8	27.1	45.5
…eats with utensils (fork, spoon, etc.)	1.0	.3	2.3	10.0	86.5
…eats only when he/she is hungry	3.2	6.8	24.5	31.9	33.2
…gets dessert as a reward	38.4	18.7	26.1	10.6	5.8
…is expected to finish everything on their plate	18.7	22.7	23.9	19.1	15.5

Items My Child…	Response Percentages Almost Never	Rarely	Sometimes	Often	Nearly Always
… snacks before bedtime	29.4	23.9	28.4	11.9	6.5
…is a picky eater	18.7	15.9	30.5	16.6	18.2
…plays outside	1.0	3.5	14.8	30.0	50.6
…plays with neighborhood friends	15.8	9.0	22.3	18.1	34.5
…participates in sports (swimming, football, gymnastics, dance, etc.)	11.9	7.1	14.2	20.0	46.8
…spends free time watching TV, playing computer games, or playing video games	2.9	10.3	36.1	27.7	22.9
…gets upset at the grocery store when I don't buy the foods that he /she wants	39.0	29.0	20.0	8.1	3.9
…is physically active for at least 30 minutes daily	1.0	3.0	12.6	20.6	61.9
…walks to school	89.7	4.2	2.9	1.3	1.6
…will play outside by themselves	14.2	15.5	26.8	24.8	17.7
…gets most of his/her physical activity at school	7.1	17.7	34.2	24.5	15.8
…doesn't have time for physical activity	55.5	20.0	15.5	5.5	3.2
…prefers indoor activities over outdoor activities	20.0	23.3	37.9	13.3	5.5
… spends a lot of time on computer, TV, and/or video game usage	11.6	23.9	38.2	17.2	9.1
…plays on at least one sports team	28.4	8.7	6.8	11.0	44.8
…participates in physical activities with parents/caregivers	7.7	7.1	30.6	33.2	21.0
…is influenced to eat unhealthy foods by other kids	30.0	33.5	26.8	5.5	2.9
…does not like vegetables	28.4	17.6	36.5	10.7	6.5
…eats when he/she is bored	41.9	28.4	17.7	8.1	2.9
…sneaks food	61.3	22.9	9.4	3.5	2.6
…has to ask permission to eat food	25.2	12.3	19.7	19.7	21.9
…complains of hunger	32.3	24.8	29.4	9.0	4.2
…eats very quickly	21.9	31.6	31.0	11.9	2.9
…eats five servings of fruits and/or vegetables a day	16.5	24.5	36.8	16.1	5.5
….stops eating when he/she is full	.6	4.8	16.1	31.6	46.1
…eats unhealthy foods at school	22.6	37.4	29.0	8.1	2.3
…is teased by other children	61.6	21.6	10.3	4.2	1.0
…avoids spending time with other kids	72.9	15.5	5.8	2.3	2.9
…buys food from vending machines	56.1	25.5	15.2	2.3	.3
…is offered unhealthy foods by other family members	28.7	30.0	31.9	7.4	1.6
…talks about healthy eating	14.2	12.9	30.3	28.1	14.2
…eats when he/she feels sad, mad, or nervous	61.3	27.7	7.7	2.6	0
…refuses to participate in physical activity	73.2	16.1	6.5	1.3	2.6
…eats frequently throughout the day	18.4	25.8	32.9	16.5	5.8
…frequently asks for unhealthy snacks	19.0	31.9	36.1	9.7	2.3

Items	Response Percentages				
My Child…	**Almost Never**	**Rarely**	**Sometimes**	**Often**	**Nearly Always**
…snacks while watching television	11.6	19.7	43.5	21.0	3.2
…eats while on the computer	56.8	19.4	11.9	9.4	1.9
I…					
… make a shopping list before going to the store	9.4	4.5	19.4	25.8	41.0
…wait until the last minute what to decide what to cook	7.1	21.0	41.9	22.3	7.7
…serve fresh fruits and vegetables	1.9	4.5	31.3	37.7	24.5
… eat vegetables	1.0	2.9	15.2	32.9	48.1
…do not have time to plan healthy meals	17.1	32.6	36.2	11.3	2.6
…have a work schedule that prevents preparing home cooked meals	33.2	23.5	29.0	10.3	3.9
…have a schedule prevents my child from participating in sports	53.9	21.0	16.1	5.8	3.2
… eat low calorie, low fat foods	8.1	13.5	38.7	26.1	13.2
…offer my child a healthy alternative when he/she asks for junk food	3.9	7.4	28.4	41.0	19.4
…keep unhealthy food out of sight of my child	13.2	22.3	26.8	23.9	13.5
…keep sweets in the house	3.9	14.2	37.1	26.1	18.7
…keep chips in the house	2.6	9.4	32.3	32.6	23.2
…have difficulty managing my child's mealtime behavior	49.4	30.0	12.9	6.1	1.3
…teach my child about healthy food choices	4.2	6.5	19.4	39.4	30.6
…limit my child's food intake	25.8	18.7	29.4	15.8	10.0
…worry about my child's weight	52.3	19.4	11.9	8.4	8.1
…am trying to lose weight	15.5	10.6	26.1	24.5	23.2
…workout , exercise, or participate in physical activity	5.8	13.5	38.1	20.6	21.9
…participate in physical activity with my child	7.1	12.3	41.9	27.7	11.0
…pack my child's lunch	30.3	10.3	11.3	16.5	31.6
…eat too much at meals	18.1	25.2	43.2	9.7	3.5
…snack too much	20.6	30.3	37.1	9.4	2.6
…eat even when I am not hungry	25.8	28.7	33.9	8.7	2.9
…serve my child's plate	1.9	3.2	11.9	29.0	53.9
…eat when I am sad, bored, nervous, or mad	33.5	25.5	28.1	7.7	5.2
…make low calorie, low fat foods when cooking for my family	7.4	11.0	41.0	28.1	12.6
…choose low calorie healthy options at fast food or at restaurants	10.6	12.9	40.0	22.3	14.2

APPENDIX H

ITEMS CHOSEN FOR REVERSE SCORING

My child eats meals by him/herself
My child chooses what is served at mealtimes
My child watches television during meals
My child eats breakfast or lunch provided by school
My child puts large portions on his/her plate
My child gets upset when they don't like what is served at meals
My child misbehaves during meals
My child has afterschool activities that interfere with having routine meal times
My child eats dessert after dinner
My child eats out at restaurants
My child eats fast food
My child eats an afternoon snack
My child prefers sweets for snacks
My child prefers something salty for snacks
My child eats while doing homework
My child can eat anytime he/she wants
My child drinks diet sodas
My child asks for more food after finishing a meal
My child eats only when he/she is hungry
My child gets dessert as a reward
My child snacks before bedtime
My child is a picky eater
My child spends free time watching TV, playing computer games, or playing video games
My child gets upset at the grocery store when I don't buy the food that he/she wants
My child walks to school
My child gets most of his/her physical activity at school
My child doesn't have time for physical activity
My child prefers indoor activities over outdoor activities
My child doesn't have time for physical activity
My child spends a lot of time on the computer, TV, and/or videogame usage
My child is influenced to eat unhealthy food by other kids
My child does not like vegetables
My child eats when he/she is bored
My child sneaks food
My child complains of hunger
My child eats very quickly
My child eats unhealthy foods at school
My child is teased by other children
My child avoids spending time with other kids
My child buys food from vending machines
My child is offered unhealthy foods by other family members
My child eats when sad, mad, nervous

My child refuses to participate in physical activity
My child eats frequently throughout the day
My child frequently asks for unhealthy snacks
My child snacks while watching television
My child eats while on the computer
I wait until the last minute to decide what to cook
I do not have time to plan healthy meals
I have a work schedule that prevents preparing home cooked meals
I have a work schedule that prevents my child from participating in sports
I keep chips in the house
I keep sweets in the house
I have difficulty managing my child's mealtime behavior
I worry about my child's weight
I am trying to lose weight
I eat too much at meals
I eat even when I'm not hungry
I eat when I am sad, bored, nervous, or mad

APPENDIX I

ITEM CHARACTERISTICS AFTER REVERSE SCORING

My Child…	Means	Standard Deviations	Item-Total Correlations
…eats breakfast daily	3.5	.9	.28
…eats meals by him/herself	1.4	1.5	.07
…chooses what is served at mealtimes	2.0	1.0	.11
…watches television during meals	2.1	1.2	.37
…eats three meals a day	3.7	.7	.32
…drinks reduced fat or skim milk	2.7	2.7	.22
…drinks water	3.3	.9	.34
…eats breakfast or lunch provided by school	1.6	1.5	.15
…brings lunch from home	1.9	1.5	.30
…puts large portions on his/her plate at meals	2.5	1.0	.18
…talks with the family during mealtimes	3.4	.8	.31
…gets upset when they don't like what is served for meals	2.3	1.2	.32
…eats meals at a routine time	3.0	1.1	.45
…misbehaves during meals	3.2	1.0	.18
…has afterschool activities that interfere with having routine meal times	2.7	1.2	.06
…eats dessert after dinner	2.3	1.1	.09
…eats out at restaurants	1.8	.8	.23
…eats fast food	1.9	.8	.55
…eats an afternoon snack	.9	.9	.05
…prefers sweets for snacks	1.8	1.1	.28
…prefers something salty for snacks	2.2	1.0	.05
…eats meals at the table	3.3	1.0	.41
…is assisted with making healthy food choices	2.6	1.0	.45
… eats while doing homework	3.1	1.0	.24
…can eat anytime he/she wants	2.4	1.3	.36
…drinks diet sodas	3.4	.9	.08
… eats vegetables at dinner	2.6	1.1	.43
…is expected to try at least one bite of everything on his/her plate	2.9	1.2	.42
…must completely finish dinner to get dessert	2.2	1.4	.13
…asks for more food after finishing a meal	2.1	1.0	.08
…stays seated at the table	3.0	1.1	.43
…eats with utensils (fork, spoon, etc.)	3.8	.6	.22
…eats only when he/she is hungry	1.1	1.1	.02
…gets dessert as a reward	2.7	1.2	.17
…is expected to finish everything on their plate	1.0	1.3	.07
… snacks before bedtime	2.6	1.2	.29
…is a picky eater	2.0	1.3	.27

My Child…	Means	Standard Deviations	Item-Total Correlations
…plays outside	3.3	.9	.25
…plays with neighborhood friends	2.5	1.4	.16
…participates in sports (swimming, football, gymnastics, dance, etc.)	2.8	1.4	.25
…spends free time watching TV, playing computer games, or playing video games	1.4	1.0	.43
…gets upset at the grocery store when I don't buy the foods that he /she wants	2.9	1.1	.36
…is physically active for at least 30 minutes daily	3.4	.9	.32
…walks to school	3.7	.7	.06
…will play outside by themselves	2.2	1.3	.08
…gets most of his/her physical activity at school	1.8	1.1	.17
…doesn't have time for physical activity	3.2	1.1	.17
…prefers indoor activities over outdoor activities	2.4	1.1	.26
… spends a lot of time on computer, TV, and/or video game usage	2.1	1.1	.48
…plays on at least one sports team	2.4	1.7	.15
…participates in physical activities with parents/caregivers	2.5	1.1	.25
…is influenced to eat unhealthy foods by other kids	2.5	1.0	.23
…does not like vegetables	2.5	1.2	.26
…eats when he/she is bored	3.0	1.1	.38
…sneaks food	3.4	1.0	.32
…has to ask permission to eat food	2.0	1.5	.07
…complains of hunger	2.7	1.1	.29
…eats very quickly	2.6	1.0	.24
…eats five servings of fruits and/or vegetables a day	1.7	1.1	.28
….stops eating when he/she is full	3.2	.9	.16
…eats unhealthy foods at school	2.7	1.0	.29
…is teased by other children	3.4	.9	.27
…avoids spending time with other kids	3.5	.9	.28
…buys food from vending machines	3.4	.8	.24
…is offered unhealthy foods by other family members	2.8	1.0	.33
…talks about healthy eating	2.2	1.2	.23
…eats when he/she feels sad, mad, or nervous	3.5	.8	.30
…refuses to participate in physical activity	3.6	.9	.24
…eats frequently throughout the day	2.3	1.1	.28
…frequently asks for unhealthy snacks	2.6	1.0	.47
…snacks while watching television	2.2	1.0	.49
…eats while on the computer	3.2	1.1	.43
I…			
… make a shopping list before going to the store	2.8	1.3	.28
…wait until the last minute what to decide what to cook	2.0	1.0	.22
…serve fresh fruits and vegetables	2.8	.9	.46
… eat vegetables	3.2	.9	.40

I…	Means	Standard Deviations	Item-Total Correlations
…do not have time to plan healthy meals	2.5	1.0	.29
…have a work schedule that prevents preparing home cooked meals	2.7	1.1	.30
…have a schedule prevents my child from participating in sports	3.2	1.1	.16
… eat low calorie, low fat foods	2.2	1.1	.43
…offer my child a healthy alternative when he/she asks for junk food	2.6	1.0	.47
…keep unhealthy food out of sight of my child	2.0	1.2	.32
…keep sweets in the house	1.6	1.1	.21
…keep chips in the house	1.4	1.0	.32
…have difficulty managing my child's mealtime behavior	3.2	1.0	.37
…teach my child about healthy food choices	2.9	1.1	.53
…limit my child's food intake	1.6	1.3	.01
…worry about my child's weight	3.0	1.3	.28
…am trying to lose weight	1.7	1.3	.06
…workout , exercise, or participate in physical activity	2.4	1.1	.29
…participate in physical activity with my child	2.2	1.0	.30
…pack my child's lunch	2.1	1.7	.27
…eat too much at meals	2.4	1.0	.22
…snack too much	2.6	1.0	.15
…eat even when I am not hungry	2.6	1.0	.21
…serve my child's plate	3.3	.9	.18
…eat when I am sad, bored, nervous, or mad	2.7	1.2	.18
…make low calorie, low fat foods when cooking for my family	2.3	1.0	.52
…choose low calorie healthy options at fast food or at restaurants	2.2	1.2	.41

APPENDIX J

ELIMINATED ITEMS

Items with low Mean (mean<2.0)
My child eats meals by him/herself
My child eats breakfast or lunch provided by school
brings lunch from home
My child eats out at restaurants
eats fast food
My child eats an afternoon snack
My child prefers sweets for snacks
My child eats only when he/she is hungry
is expected to finish everything on their plate
My child spends free time watching TV, playing computer games, or playing video games
My child gets most of his/her physical activity at school
My child eats five servings of fruits and/or vegetables a day
I keep sweets in the house
I keep chips in the house
I limit my child's food intake
I am trying to lose weight
Items with low Item Total Correlation (r<.2)
eats meals by him/herself
My child chooses what is served at mealtimes
eats breakfast or lunch provided by school
puts large portions on his/her plate
misbehaves during meals
My child has afterschool activities that interfere with having routine meal times
My child eats dessert after dinner
eats an afternoon snack
My child prefers something salty for snacks
My child drinks diet sodas
My child must completely finish dinner to get dessert
My child asks for more food after finishing a meal
My child gets dessert as a reward
My child is expected to finish everything on their plate
My child plays with neighborhood friends
My child walks to school
My child will play outside by themselves
gets most of his/her physical activity at school
doesn't have time for physical activity
My child plays on at least one sports team
My child has to ask permission to eat food
My child stops eating when he/she is full
have a schedule prevents my child from participating in sports
limit my child's food intake

am trying to lose weight
I snack too much
serve my child's plate
I eat when I am sad, bored, nervous, or mad

Items not loading on a scale (factor loading <.32)

My child talks about healthy eating
I have a work schedule that prevents preparing home cooked meals
My child does not like vegetables
I wait until the last minute what to decide what to cook
My child is teased by other children
My child buys food from vending machines
I have difficulty managing my child's mealtime behavior
My child gets upset when they don't like what is served for meals
My child is expected to try at least one bite of everything on his/her plate
My child eats with utensils (fork, spoon, etc.)
I make a shopping list before going to the store
My child drinks reduced fat or skim milk
I pack my child's lunch
My child can eat anytime he/she wants
My child is a picky eater
My child watches television during meals

APPENDIX K

FACTORS & FACTOR LOADINGS

Items	Factors 1	2	3	4
I make low calorie, low fat foods when cooking for my family	**.74**	.09	.13	.02
I eat low calorie, low fat foods	**.66**	.03	.13	.10
I choose low calorie healthy options at fast food or at restaurants	**.66**	.12	.02	.01
I teach my child about healthy food choices	**.64**	.06	.20	.16
I offer my child a healthy alternative when he/she asks for junk food	**.61**	.10	.21	-.02
I serve fresh fruits and vegetables	**.56**	-.01	.21	.13
I workout, exercise, or participate in physical activity	**.53**	-.01	-.09	.11
I eat vegetables	**.50**	-.01	.15	.16
My child is assisted with making healthy food choices	**.44**	.04	.30	.10
I keep unhealthy food out of sight of my child	**.42**	.11	.16	-.12
I participate in physical activity with my child	**.41**	.03	-.02	.31
My child drinks water	**.38**	.15	.09	.10
My child eats vegetables at dinner	**.37**	-.02	.08	.10
I do not have time to plan healthy meals	**.32**	.22	-.12	.09
My child frequently asks for unhealthy snacks	.14	**.68**	.15	-.03
My child eats when he/she is bored	.06	**.58**	.05	.06
My child eats frequently throughout the day	-.02	**.56**	.16	-.19
My child snacks while watching television	.12	**.49**	.39	-.04
My child is offered unhealthy foods by other family members	.14	**.48**	-.06	-.03
My child eats when he/she feels sad, mad, or nervous	-.16	**.46**	.20	.23
My child sneaks food	.03	**.45**	.08	.16
My child complains of hunger	.05	**.43**	.01	.11
My child is influenced to eat unhealthy foods by other kids	.01	**.42**	-.04	.10
My child eats while on the computer	.06	**.42**	.41	-.05
I eat even when I am not hungry	.10	**.40**	-.14	-.01
My child eats very quickly	.04	**.38**	-.01	.02
I eat too much at meals	.14	**.37**	-.14	.04
My child eats unhealthy foods at school	.11	**.35**	.08	.02
My child spends a lot of time on computer, TV, and/or videogame usage	.30	**.33**	.16	.20
My child snacks before bedtime	.14	**.33**	.23	-.19
My child gets upset at the grocery store when I don't buy the foods that he/she wants	.00	**.32**	.32	.12
My child eats meals at the table	.19	.01	**.66**	.05
My child stays seated at the table	.19	.09	**.61**	.12
My child eats meals at a routine time	.33	-.03	**.55**	.14
My child eats three meals a day	.12	-.06	**.54**	.25

Items	Factors			
	1	**2**	**3**	**4**
My child eats breakfast daily	.09	-.05	**.53**	.08
My child talks with the family during mealtimes	.20	-.02	**.37**	.28
My child eats while doing homework	-.11	.24	**.37**	-.09
My child plays outside	.19	-.12	-.06	**.66**
My child is physically active for at least 30 minutes daily	.13	.00	.06	**.64**
My child participates in physical activities with parents/caregivers	.22	-.01	.01	**.56**
My child participates in sports (swimming, football, gymnastics, dance, etc.)	.13	-.03	.28	**.53**
My child refuses to participate in physical activity	-.03	.13	.16	**.52**
My child prefers indoor activities over outdoor activities	.06	.14	.01	**.46**
My child avoids spending time with other kids	-.07	.20	.21	**.42**
I worry about my child's weight	.02	.21	.17	**.40**
Eigenvalues	**5.3**	**4.4**	**4.0**	**3.3**
Percent Variance	**8.5**	**6.9**	**6.4**	**5.2**

Factor 1: Healthy Family Behaviors (α= .85), Factor 2: Unhealthy Family Behaviors (α= .82), Factor 3: Mealtime Routines (α= .75), Factor 4: Physical Activity (α= .75)

APPENDIX L

FAMILY EATING AND ACTIVITY QUESTIONNAIRE (45-ITEM)

Please rate how often your child engaged in the following health behaviors by circling a rating ranging from 0 (almost never) to 4 (nearly always). If an item does not apply to your child due to his or her age, please mark "0".

My Child…	Rate how often your child does each of the following behaviors. 0 =Almost Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always
1. …eats breakfast daily	0 1 2 3 4
2. …drinks water	0 1 2 3 4
3. … participates in sports (swimming, football, gymnastics, dance, etc.)	0 1 2 3 4
4. … eats while on the computer	0 1 2 3 4
5. …avoids spending time with other kids	0 1 2 3 4
6. … eats unhealthy foods at school	0 1 2 3 4
7. … gets upset at the grocery store when I don't buy the foods that he/she wants	0 1 2 3 4
8. … prefers indoor activities over outdoor activities	0 1 2 3 4
9. …is assisted with making healthy food choices	0 1 2 3 4
10. … snacks before bedtime	0 1 2 3 4
11. …eats frequently throughout the day	0 1 2 3 4
12. …eats vegetables at dinner	0 1 2 3 4
13. … refuses to participate in physical activity	0 1 2 3 4
14. … talks with the family during mealtimes	0 1 2 3 4
15. … participates in physical activities with parents/caregivers	0 1 2 3 4

16. … frequently asks for unhealthy snacks	0	1	2	3	4
17. … is physically active for at least 30 minutes daily	0	1	2	3	4
18. … eats meals at the table	0	1	2	3	4
19. … is offered unhealthy foods by other family members	0	1	2	3	4
20. … snacks while watching television	0	1	2	3	4
21. … plays outside	0	1	2	3	4
22. … eats meals at a routine time	0	1	2	3	4
23. … eats while doing homework	0	1	2	3	4
24. … stays seated at the table	0	1	2	3	4
25. … sneaks food	0	1	2	3	4
26. … eats three meals a day	0	1	2	3	4
27. … eats very quickly	0	1	2	3	4
28. … eats when he/she feels bored, sad, mad, or nervous	0	1	2	3	4
29. … complains of hunger	0	1	2	3	4
30. … is influenced to eat unhealthy foods by other kids	0	1	2	3	4
31. …spends a lot of time on computer, TV, and/or video game usage	0	1	2	3	4

Please rate how often you engage in the following health behaviors by circling a rating ranging from 0 (almost never) to 4 (nearly always). If an item does not apply to you please mark "0".

I…	Rate how often you do each of the following behaviors. 0 =Almost Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always				
32. …worry about my child's weight	0	1	2	3	4
33. …make low calorie, low fat foods when cooking for my family	0	1	2	3	4
34. … offer my child a healthy alternative when he/she asks for junk food	0	1	2	3	4

35. … eat low calorie, low fat foods	0	1	2	3	4
36. … do not have time to plan healthy meals	0	1	2	3	4
37. … keep unhealthy food out of sight of my child	0	1	2	3	4
38. … choose low calorie healthy options at fast food or at restaurants	0	1	2	3	4
39. … eat vegetables	0	1	2	3	4
40. … eat too much at meals	0	1	2	3	4
41. … workout, exercise, or participate in physical activity	0	1	2	3	4
42. … serve fresh fruits and vegetables	0	1	2	3	4
43. … teach my child about healthy food choices	0	1	2	3	4
44. … eat even when I am not hungry	0	1	2	3	4
45. … participate in physical activity with my child	0	1	2	3	4

APPENDIX M

FAMILY EATING AND ACTIVITY HABITS QUESTIONNAIRE

(Please refer your answers to questions 1-4 to yourself, your spouse, and your 6-11 year old child)

1. **How many hours per week on average do you watch television and/or play computer games?**
   Mother: _____ Father: _____ Child: _____

2. **How many hours per week on average do you engage in the following activities?**

	Mother	Father	Child
Ride bicycles			
Take walk			
Swim			
Do gymnastics			
Dance			
Play tennis			
Other			

3. **How many times per week on average do you attend leisure time classes (including exercise classes)? (if none, write 0)**
   Mother: _____ Father:_____ Child:_____

4. **When you are alone and are not busy, do you get bored?**
   (Place the number of your answer in the appropriate column)

	Mother	Father	Child
0-Never			
1-Almost never			
2-Sometimes			
3-Frequently			
4-Always			

In modern society people often skip meals, do with snacks instead of proper meals or eat irregularly or depending on their mood. The following questions are related to the types of foods you and your family eat, and your eating behavior. (Circle appropriate items.)

5. **How many of the following snacks are usually found in your homes?**
   Chitos, Pretzels, Potato Chips, Ruffles, Popcorn, Sunflower seeds, Peanuts, Almonds, Pistachios, Nuts, Other.

6. **How many of the following types of sweets are usually found in your home?**
   Chocolate and chocolate bars, Candy, Wafers, Cookies, Jam, Other.

7. How many types of cake are usually found in your home? _____

8. How many types of ice-cream and popsicles are usually found in your home? ___

9. During the weekend, do you add more of the foods listed in 5-8?

0- Don't add
1- Add

10. You usually keep the snacks and sweets in your home in

0- A hiding place
1- Known but not seen place
2- Reachable place

11. To what degree can your child eat snacks and/or sweets without your permission?

0- Never
1- Almost Never
2- Sometimes
3- Frequently
4- Always

12. How frequently does your child buy his/her own sweets?

0- Never
1- Almost Never
2- Sometimes
3- Frequently
4- Always

13. When your child asks to eat, does he/she claim to be hungry?

0- Yes
1- No

14. Usually when the child eats:

1- He/she asked for it.
2- The food was offered by the mother/father

15. If it is meal time and your child is not hungry, how would you respond?

0- You suggest that the child will eat later
1- You suggest that the child sit at the table with the rest of the family but would not eat
2- You suggest that the child sit at the table with the rest of the family but would eat less
3- You convince the child to eat with the rest of the family.
4- This is an irrelevant question, the child is always hungry.

16. When it is meal time and you are not hungry what would you do? (Both parents)

Mother: 0- Not eat	Father: 0- Not eat
1- Eat less	1- Eat less
2- Eat the same	2- Eat the same
3- It never happens	3-It never happens

Frequently, we just grab something to eat, or eat under certain conditions or mood. (Please refer your answer to questions 17-20 to yourself, your spouse, and your child)

17. How frequently do the following behaviors occur for each family member:

Mother	Never 0	Almost Never 1	Sometimes 2	Frequently 3	Always 4
Eat while standing					
Eat straight from the pot/baking pan/bowl/frying pan					
Eat while watching television, reading, working					
Eat when bored					
Eat when angry or in other negative mood states					
Eat in a disorderly way during the afternoon					
Eat late in the evening or at night					

Father	Never 0	Almost Never 1	Sometimes 2	Frequently 3	Always 4
Eat while standing					
Eat straight from the pot/baking pan/bowl/frying pan					
Eat while watching television, reading, working					
Eat when bored					
Eat when angry or in other negative mood states					
Eat in a disorderly way during the afternoon					
Eat late in the evening or at night					

Child	Never 0	Almost Never 1	Sometimes 2	Frequently 3	Always 4
Eat while standing					
Eat straight from the pot/baking pan/bowl/frying pan					
Eat while watching television, reading, working					
Eat when bored					
Eat when angry or in other negative mood states					
Eat in a disorderly way during the afternoon					
Eat late in the evening or at night					

18. How often do you eat in the following rooms? If you do not have such a room in the house, please mark with -)

Mother	Never 0	Almost Never 1	Sometimes 2	Frequently 3	Always 4
Living Room/TV room					
Bedroom					
Office					

Father	Never 0	Almost Never 1	Sometimes 2	Frequently 3	Always 4
Living Room/TV room					
Bedroom					
Office					

Child	Never 0	Almost Never 1	Sometimes 2	Frequently 3	Always 4
Living Room/TV room					
Bedroom					
Office					

19. Compared to other people your age, how would you rate your eating pace:

Mother: 1- Slow 2- Average 3- Fast
Father: 1- Slow 2- Average 3- Fast
Child: 1- Slow 2- Average 3- Fast

20. How often do you customarily ask for or take a second helping?

Mother: 0-Never 1-Almost Never 2- Sometimes 3- Frequently 4-Always
Father: 0-Never 1-Almost Never 2- Sometimes 3- Frequently 4-Always
Child: 0-Never 1-Almost Never 2- Sometimes 3- Frequently 4-Always

21. How often do you or your spouse eat with the child?

Breakfast: 0-Never 1-Almost Never 2- Sometimes 3- Frequently 4-Always
Lunch: 0-Never 1-Almost Never 2- Sometimes 3- Frequently 4-Always
Afternoon Snack: 0-Never 1-Almost Never 2- Sometimes 3- Frequently 4-Always
Dinner: 0-Never 1-Almost Never 2- Sometimes 3- Frequently 4-Always

APPENDIX N

ALABAMA PARENTING QUESTIONNAIRE

The University of New Orleans
Alabama Parenting Questionnaire (APQ)
(Parent Form)

Parent Completing Form(Circle one): Mother Father Other: _____

Instructions: The following are a number of statements about your family. Please rate each item as to how often it TYPICALLY occurs in your home. The possible answers are Never (1), Almost Never (2), Sometimes (3), Often (4), Always (5). PLEASE ANSWER ALL ITEMS.

	Never	Almost Never	Sometimes	Often	Always
1. You have a friendly talk with your child.	1	2	3	4	5
2. You let your child know when he/she is doing a good job with something.	1	2	3	4	5
3. You threaten to punish your child and then do not actually punish him/her.	1	2	3	4	5
4. You volunteer to help with special activities that your child is involved in (such as sports, boy/girl scouts, church youth groups).	1	2	3	4	5
5. You reward or give something extra to your child for obeying you or behaving well.	1	2	3	4	5
6. Your child fails to leave a note or to let you know where he/she is going.	1	2	3	4	5
7. You play games or do other fun things with your child.	1	2	3	4	5
8. Your child talks you out of being punished after he/she has done something wrong.	1	2	3	4	5

	Never	Almost Never	Sometimes	Often	Always
9. You ask your child about his/her day in school.	1	2	3	4	5
10. Your child stays out in the evening past the time he/she is supposed to be home.	1	2	3	4	5
11. You help your child with his/her homework.	1	2	3	4	5
12. You feel that getting your child to obey you is more trouble that it's worth.	1	2	3	4	5
13. You compliment your child when he/she does something well.	1	2	3	4	5
14. You ask your child what his/her plans are for the coming day.	1	2	3	4	5
15. You drive your child to a special activity.	1	2	3	4	5
16. You praise your child if he/she behaves well.	1	2	3	4	5
17. Your child is out with friends you don't know.	1	2	3	4	5
18. You hug or kiss your child when he/she has done something well.	1	2	3	4	5
19. Your child goes out without a set time to be home.	1	2	3	4	5
20. You talk to your child about his/her friends.	1	2	3	4	5
21. Your child is out after dark without an adult with him/her.	1	2	3	4	5

	Never	Almost Never	Sometimes	Often	Always
22. You let your child out of a punishment early (like lift restrictions earlier than you originally said).	1	2	3	4	5
23. Your child helps plan family activities.	1	2	3	4	5
24. You get so busy that you forget where your child is and what he/she is doing.	1	2	3	4	5
25. Your child is not punished when he/she has done something wrong.	1	2	3	4	5
26. You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school.	1	2	3	4	5
27. You tell your child that you like it when he/she helps out around the house.	1	2	3	4	5
28. You don't check that your child comes home at the time she/he was supposed to.	1	2	3	4	5
29. You don't tell your child where you are going.	1	2	3	4	5
30. Your child comes home from school more than an hour past the time you expect him/her.	1	2	3	4	5
31. The punishment you give your child depends on your mood.	1	2	3	4	5
32. Your child is at home without adult supervision.	1	2	3	4	5

	Never	Almost Never	Sometimes	Often	Always
33. You spank your child with your hand when he/she has done something wrong.	1	2	3	4	5
34. You ignore your child when he/she is misbehaving.	1	2	3	4	5
35. You slap your child when he/she has done something wrong.	1	2	3	4	5
36. You take away privileges or money from your child as a punishment.	1	2	3	4	5
37. You send your child to his/her room as a punishment.	1	2	3	4	5
38. You hit your child with a belt, switch, or other object when he/she has done something wrong.	1	2	3	4	5
39. You yell or scream at your child when he/she has done something wrong.	1	2	3	4	5
40. You calmly explain to your child why his/her behavior was wrong when he/she misbehaves.	1	2	3	4	5
41. You use time out (make him/her sit or stand in a corner) as a punishment.	1	2	3	4	5
42. You give your child extra chores as a punishment.	1	2	3	4	5

APPENDIX O

CHILD ROUTINES QUESTIONNAIRE

CHILD ROUTINES INVENTORY (39-ITEM VERSION)

Routines are events that occur at about the same time, in the same order, or in the same way every time. **Please rate how often your child engages in each routine by circling a rating ranging from 0 (never) to 4 (nearly always) of *how often* your child has engaged in this routine in the last month.** If an item does not apply to your child due to his or her age, please mark "0".

My child…	How **often** does it occur at about the **same time** or in the **same way**? 0 = Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always
1) … has a set routine for getting ready in the morning (e.g., brushing teeth, washing face, doing hair, and dressing)	0 1 2 3 4
2) … knows what will happen if he or she doesn't follow parent instructions or rules	0 1 2 3 4
3) … takes turns with family members talking about their day	0 1 2 3 4
4) … has regular chores (e.g., takes out trash, helps with laundry, feeds/cares for family pet)	0 1 2 3 4
5) … straightens bedroom daily	0 1 2 3 4
6) … eats meals with family at the table each day	0 1 2 3 4
7) … hugs / kisses parent before bed	0 1 2 3 4
8) … cleans up food mess after snack	0 1 2 3 4
9) … spends special time talking with parent (e.g., in the car or before bed) each day	0 1 2 3 4
10) … practices for lessons, such as piano or dance at about the same time each day	0 1 2 3 4
11) … does the same things each night before bed (e.g., brush teeth, read story, say prayers, and kiss parent goodnight)	0 1 2 3 4
12) … has household rules such as "No cursing", "No talking while eating" or "No running inside"	0 1 2 3 4
13) … wakes up at about the same time on week days	0 1 2 3 4
14) … must finish household responsibilities (e.g., homework or chores) **before play time**	0 1 2 3 4
15) … receives rewards or privileges for specific good behavior (e.g., finishing homework or completing chores)	0 1 2 3 4
16) … eats dinner at about the same time each day	0 1 2 3 4
17) … brushes teeth before bed	0 1 2 3 4
18) … picks up dirty clothes after changing	0 1 2 3 4
19) … washes hands before mealtime	0 1 2 3 4
20) … reads or listens to the Bible or other devotional book with family each day	0 1 2 3 4
21) … goes to bed at about the same time on week nights	0 1 2 3 4
22) … helps clean up after meals	0 1 2 3 4
23) … has time limits on fun activities (e.g., outside play, TV, video games, or phone use)	0 1 2 3 4

My child…	How **often** does it occur at about the **same time** or in the **same way**? 0 = Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Nearly Always
24) … washes hands after using toilet	0 1 2 3 4
25) … is disciplined for misbehavior (e.g., time out, loss of a privilege, or spanking)	0 1 2 3 4
26) … helps decide and prepare for family fun or events	0 1 2 3 4
27) … receives smaller punishment for minor misbehavior (e.g., not following instructions), and larger punishment for major misbehavior (e.g., fighting)	0 1 2 3 4
28) … picks up toys and puts them away when done playing	0 1 2 3 4
29) … eats breakfast at about the same time and place (e.g., at kitchen table or at school) each morning	0 1 2 3 4
30) … makes bed each morning	0 1 2 3 4
31) … helps puts things away after shopping	0 1 2 3 4
32) … is praised or rewarded for specific good behavior (e.g., "I like the way you put away your toys")	0 1 2 3 4
33) … says prayers before meals	0 1 2 3 4
34) … takes part in "family time" each week when the family does planned activities together (e.g., play games, watch movies, go out to eat)	0 1 2 3 4

The next questions are about school and homework.

Does your child attend school?	**YES** **NO**

If you answered "NO", please stop here and go to the next page. If you answered "YES", please continue.

Has your child attended school in the past month?	**YES** **NO**

If you answered "YES", please continue with #35.

If you answered "NO", please answer #35 to #39 based on how frequently your child engaged in these activities during the LAST MONTH school was in session

35) … shows parent school work after school (e.g., art work or spelling test)	0 1 2 3 4
36) … begins homework at about the same time and place (e.g., at the kitchen table) during the week	0 1 2 3 4
37) … is supervised by an adult who helps child with homework by explaining tasks, demonstrating the task, and/or checking the answers when it is completed.	0 1 2 3 4
38) … completes homework	0 1 2 3 4
39) … studies for tests (e.g., weekly spelling test)	0 1 2 3 4

APPENDIX P

EYBERG CHILD BEHAVIOR INVENTORY

ECBI: Eyberg Child Behavior Inventory

Parent Rating Form by Sheila Eyberg, Ph.D.

Directions: Below are a series of phrases that describe children's behavior. Please (1) circle the number describing **how often** the behavior **currently** occurs with your child, and (2) circle either "yes" **or** "no" to indicate whether the behavior is **currently a problem for you.**

	How often does this occur with your child?							Is this a problem for you?	
	Never	Seldom	Sometimes		Often		Always		
1. Dawdles in getting dressed	1	2	3	4	5	6	7	YES	NO
2. Dawdles or lingers at mealtime	1	2	3	4	5	6	7	YES	NO
3. Has poor table manners	1	2	3	4	5	6	7	YES	NO
4. Refuses to eat food presented	1	2	3	4	5	6	7	YES	NO
5. Refuses to do chores when asked	1	2	3	4	5	6	7	YES	NO
6. Slow in getting ready for bed	1	2	3	4	5	6	7	YES	NO
7. Refuses to go to bed on time	1	2	3	4	5	6	7	YES	NO
8. Does not obey house rules on own	1	2	3	4	5	6	7	YES	NO
9. Refuses to obey until threatened with punishment	1	2	3	4	5	6	7	YES	NO
10. Acts defiant when told to do something	1	2	3	4	5	6	7	YES	NO
11. Argues with parents about rules	1	2	3	4	5	6	7	YES	NO
12. Gets angry when doesn't get own way	1	2	3	4	5	6	7	YES	NO
13. Has temper tantrums	1	2	3	4	5	6	7	YES	NO
14. Sasses adults	1	2	3	4	5	6	7	YES	NO
15. Whines	1	2	3	4	5	6	7	YES	NO
16. Cries easily	1	2	3	4	5	6	7	YES	NO
17. Yells or screams	1	2	3	4	5	6	7	YES	NO
18. Hits parents	1	2	3	4	5	6	7	YES	NO
19. Destroys toys and other objects	1	2	3	4	5	6	7	YES	NO
20. Is careless with toys and other objects	1	2	3	4	5	6	7	YES	NO
21. Steals	1	2	3	4	5	6	7	YES	NO
22. Lies	1	2	3	4	5	6	7	YES	NO

	How often does this occur with your child?							Is this a problem for you?	
	Never	Seldom	Sometimes		Often		Always		
23. Teases or provokes other children	1	2	3	4	5	6	7	YES	NO
24. Verbally fights with friends own age	1	2	3	4	5	6	7	YES	NO
25. Verbally fights with sisters and brothers	1	2	3	4	5	6	7	YES	NO
26. Physically fights with friends own age	1	2	3	4	5	6	7	YES	NO
27. Physically fights with sisters and brothers	1	2	3	4	5	6	7	YES	NO
28. Constantly seeks attention	1	2	3	4	5	6	7	YES	NO
29. Interrupts	1	2	3	4	5	6	7	YES	NO
30. Is easily distracted	1	2	3	4	5	6	7	YES	NO
31. Has short attention span	1	2	3	4	5	6	7	YES	NO
32. Fails to finish tasks or projects	1	2	3	4	5	6	7	YES	NO
33. Has difficulty entertaining self alone	1	2	3	4	5	6	7	YES	NO
34. Has difficulty concentrating on one thing	1	2	3	4	5	6	7	YES	NO
35. Is overactive or restless	1	2	3	4	5	6	7	YES	NO
36. Wets the bed	1	2	3	4	5	6	7	YES	NO

Pg. 2 Subtotals		
Pg. 1 Subtotals		

Scores	Raw score	*T* score	Exceeds Cutoff
Intensity			
Problem			

APPENDIX Q

CONSENT FORM

1. **Study Title:** Development and initial Validation of the Child Eating Behaviors and Activities Questionnaire.

2. **Performance Sites:** Children and their parents will be recruited on a voluntary basis from private physician waiting rooms, churches, and private and public schools. Additionally, parents who previously participated and indicated that they were interested in being contacted about future studies will also be recruited for participation.

3. **Names and Telephone Numbers of Investigators:** If you have questions concerning this form or the study, please contact Mary Lou Kelley, Ph.D. at (225) 578-4113 and Jenny Palcic at (225)-247-3226 on Monday through Friday, 8:00 a.m. to 5:00 p.m.

4. **Purpose of the Study:** The purpose of this study is to develop a questionnaire to measure the eating behaviors and physical activity of children.

5. **Who is involved**: Fathers, mothers, and caregivers of children between the ages of 6 and 12 are eligible for inclusion in the study.

6. **Number of Subjects:** 600

7. **What is involved:**
   Mothers/fathers/caretakers will be asked if they would be interested in participating in the study. Only those with signed consent forms can participate in the study. If you voluntarily agree to participate in the study, you will spend approximately 30 minutes to an hour completing a demographic questionnaire, two questionnaires that will ask you to rate the frequency of your family's eating and physical activity behaviors, a survey of parenting behaviors, and a survey of child behavior problems. Additionally, researchers will measure your child's height and weight in centimeters and kilograms using a stadiometer and Tanita digital scale. In order to ensure reliability, heights and weights will be measured twice. If anyone has difficulty reading the forms, the researchers will provide assistance. Children of parents who agree to participate will earn a small prize for their participation.

   The study is completely confidential and neither you nor your child will be linked to the data in any way. You will be asked to provide your name and phone number. If you would like to be contacted about future research opportunities, you may provide your email address and/or address. Participation in future research is completely optional. Two weeks later, 150 participants who indicated that they would like to be contacted about future studies will be contacted again and will be asked to complete the FEAQ in order to establish reliability of the FEAQ. Children of parents who complete the form two weeks later will receive another small prize. At the end of the study, any identifying information will be destroyed. You will have no further obligation after you complete the questionnaires. Also you will be asked if you would like to be contacted about the results of the study.

8. **Benefits:** Completion of the project will help us to understand the eating and physical activity habits of children. This will aid in determining behaviors related to obesity and can assist health care professionals in assessing families and providing quality health care and preventative services to children and their families.

9. **Risks/Discomforts:** There are no known risks to participating, though your child could experience distress while being weighed. In order to prevent stigmatization your child's weight will be measured in kilograms and children will be instructed not to compare their results. Should you or your child experience distress during participation in the study; the investigators can provide mental health resources to you.

10. **Right To Refuse:** Participation in this study is voluntary. You may change your mind and withdraw from the study at any time without penalty or loss of any benefit to which you may otherwise be entitled.

11. **Privacy:** The information gathered on you and your child will be kept confidential. Neither of your names will appear on any of the questionnaires or any other information. Your information will be identified by a code rather than a name. Any records with your name or your child's name will be maintained in a locked file cabinet in the research lab of Dr. Kelley at Louisiana State University. Subject identity will be kept confidential unless release is required by law.

12. **Financial Information:** There is no cost for participation in the study. Children may receive small rewards or prizes if they and their parents participate in the study.

13. **Removal:** Subjects who fail to complete the questionnaires will be removed from the study.

14. **Signatures:**

"This study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Matthews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a signed copy of this consent form."

_____ _____

Signature of Parent/Guardian Date

"The study subject has indicated to me that he/she is unable to read. I certify that I have read this consent form to the subject and explained that by completing the signature line above the subject has agreed to participate."

_____ _____

Signature of Reader Date

CHILD ASSENT FORM

I, _____, agree to be in this study to help people learn about things families do to eat healthy and exercise at home and at school. A researcher will measure how tall I am and how much I weigh using a ruler on the wall and a scale that I step on. The researchers will not tell me or anyone else how tall I am or how much I weigh. They will keep this information private. I can decide not to be in the study at any time without getting in trouble.

_____	_____	_____
Child's Name and Age	Child's Signature	Date

The study subject is a child and I certify that I am his/her legal guardian.

_____	_____	_____
Legal Guardian's Name	Legal Guardian's Signature	Date

APPENDIX R

ITEM CHARACTERISTICS AFTER REVERSE SCORING (45-ITEM)

My Child…	Means	SD	Item-Total Correlations
…eats breakfast daily	3.5	.9	.41
…drinks water	3.1	.8	.39
…participates in sports (swimming, football, gymnastics, dance, etc.)	2.7	1.2	.39
…eats while on the computer	3.3	1.0	.40
…avoids spending time with other kids	3.3	1.1	.25
…eats unhealthy foods at school	2.6	1.0	.38
…gets upset at the grocery store when I don't buy the foods that he /she wants	3.0	1.1	.32
…prefers indoor activities over outdoor activities	2.3	1.2	.27
…is assisted with making healthy food choices	2.4	1.0	.28
… snacks before bedtime	2.5	1.1	.40
…eats frequently throughout the day	2.1	1.0	.16
… eats vegetables at dinner	2.6	1.2	.49
…refuses to participate in physical activity	3.5	.9	.40
…talks with the family during mealtimes	3.3	.9	.37
…participates in physical activities with parents/caregivers	2.8	1.0	.50
…frequently asks for unhealthy snacks	1.9	.9	.40
…is physically active for at least 30 minutes daily	3.1	1.0	.49
…eats meals at the table	3.5	.8	.44
…is offered unhealthy foods by other family members	2.4	1.0	.42
…snacks while watching television	2.0	1.1	.41
…plays outside	3.1	1.0	.47
…eats meals at a routine time	3.1	1.0	.52
… eats while doing homework	2.9	1.0	.23
…stays seated at the table	3.0	1.1	.40
…sneaks food	3.2	1.0	.40
…eats three meals a day	3.4	.9	.43
…eats very quickly	2.4	1.1	.38
…eats when he/she feels bored, sad, mad, or nervous	3.1	1.0	.45
…complains of hunger	2.5	1.2	.24
…is influenced to eat unhealthy foods by other kids	2.8	1.0	.27
…spends a lot of time on computer, TV, and/or video game usage	2.0	1.1	.31
I…			
…worry about my child's weight	2.8	1.4	.33
…make low calorie, low fat foods when cooking for my family	2.3	1.0	39
…offer my child a healthy alternative when he/she asks for junk food	2.8	.9	.44

I…	Means	SD	Item-Total Correlations
… eat low calorie, low fat foods	2.3	1.0	.41
…do not have time to plan healthy meals	2.6	1.1	.34
…keep unhealthy food out of sight of my child	2.0	1.2	.20
…choose low calorie healthy options at fast food or at restaurants	2.2	1.1	.33
… eat vegetables	3.1	1.0	.51
…eat too much at meals	2.4	.10	.28
…workout , exercise, or participate in physical activity	2.6	1.2	.43
…serve fresh fruits and vegetables	3.1	.9	.53
…teach my child about healthy food choices	3.0	1.0	.59
…eat even when I am not hungry	2.7	1.0	.18
…participate in physical activity with my child	2.3	1.0	.47

VITA

Jennette L. Palcic is a doctoral student in clinical psychology at Louisiana State University, and is specializing in pediatric psychology. She graduated *Summa Cum Laude* with honors in psychology from Tulane University in May 2003. She is a member of the *Phi Beta Kappa* society of Tulane University. Ms. Palcic later earned her Master of Arts degree in psychology from the Department of Psychology at Louisiana State University and Agricultural and Mechanical College in Baton Rouge, Louisiana in August of 2005. Her area of specialization is clinical child psychology under the mentorship of Mary Lou Kelley, Ph.D., with a minor concentration in public healthcare administration. Ms. Palcic completed her pre-doctoral internship in the Department of Psychiatry and Psychology at Baylor College of Medicine in Houston, Texas. On her pre-doctoral internship, Ms. Palcic specialized in the pediatric psychology track at Texas Children's Hospital. She is currently a pre-doctoral fellow in pediatric psychology at Texas Children's Hospital in the Department of Psychiatry and Psychology at Baylor College of Medicine in Houston, Texas. Ms. Palcic is pursuing a faculty position in the Department of Pediatrics-Nutrition at Baylor College of Medicine. Her current research interests include efficacious interventions for the treatment and prevention of childhood obesity and the importance of parental involvement in the prevention and treatment of childhood obesity.