

UNDERSTANDING PARENTAL FEEDING BEHAVIOR OF CHILDREN AGES 2 TO  
5 YEARS OLD USING THE THEORY OF PLANNED BEHAVIOR

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By

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I thank God who is my light and guide. I also thank the committee members and my family and friends who have contributed significantly to this document with their support and prayers.

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## **ABSTRACT**

### **UNDERSTANDING PARENTAL FEEDING BEHAVIOR OF CHILDREN AGES 2 TO 5 YEARS OLD USING THE THEORY OF PLANNED BEHAVIOR**

by

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In order to understand the prevalence of childhood overweight and obesity, this study examined the parental feeding behavior of healthy and unhealthy food to children ages 2-5, utilizing the Theory of Planned Behavior. The following hypotheses were posited: Hypothesis 1 – Attitudes and subjective norms and perceived behavioral control (PBC) positively predict intentions of parents to give healthy foods to their children during the week. Hypothesis 2 – Attitudes, subjective norms and PBC predict positive associations with intentions of parents giving unhealthy foods to their children during the week. Regression was used in the statistical analysis. Results showed that PBC was the only predictor in the intent of parents to give healthy foods to their children. Attitudes and PBC independently worked in explaining the variance found in the intent of parents to give unhealthy foods to their children.

## CHAPTER I

### INTRODUCTION AND REVIEW OF LITERATURE

#### Overview of Obesity: Prevalence, Concept and Children

Obesity is considered a rising health concern among adults, adolescents and children in the United States, as prevalence rates increase with age over the last decade (Ogden, 2003; 2006). In a study by Ogden et al. (2006), results showed that 32.2% of adults ages 20 and older were obese and 4.8% were extremely obese in 2003-2004. Based on an analysis of the National Health and Nutrition Examination Survey (NHANES) data, the prevalence of youth ages 2-19 years at risk for being overweight increased from 28.2% in 1999-2000 to 33.6% in 2003-2004; and the percentage of overweight youth increased from 13.9% to 17.1%. Of particular interest is the increasing prevalence of children ages 2-5 years at risk for being overweight from 22% in 1999-2000 to 26.2% in 2003-2004; and the percentage of overweight children, which increased from 10.3% to 13.9% (Ogden et al., 2006).

In a follow-up article by Ogden, Carroll, & Flegal (2008) that added 2005-2006 to the above mentioned time period, the authors did not find any statistically significant difference in the prevalence of high Body Mass Index (BMI) in children ages 2-19. Their results indicated that 11.3% of children and adolescents were at or above the 97<sup>th</sup> percentile of the BMI taken in 2000 according to the growth charts; 16.3% were at or above the 95<sup>th</sup> percentile; and 31.9% were at or above the 85<sup>th</sup> percentile. Of particular interest are the children ages 2-5 years: 8.05% were at or above the 97<sup>th</sup> percentile; 12.4%

were at or above the 95<sup>th</sup> percentile; and 24.4% were at or above the 85<sup>th</sup> percentile. The results of the article also did not show any statistically significance difference in age and racial/ethnic group among the youth studied (Ogden, Carroll, & Flegal, 2008).

#### Childhood Overweight and Obesity: Consequences

Even though the above studies indicate that the prevalence of obesity in children ages 2 – 5 years may have decreased from 2003-2004 to 2003-2006, it is still a concern to this age group. Overall, obesity and being overweight have serious health implications in adults, including chronic conditions such as diabetes, hypertension, high cholesterol, stroke, heart disease, certain cancers, nonalcoholic fatty liver disease and arthritis (Harris et al., 1998; Ogden et al., 2007). Children obesity is considered to be a major risk factor for many chronic diseases, such as Type 2 diabetes, high blood pressure, hyperlipidemia, and adult obesity (Crawford et al., 2001; Serdula et al., 1993; Fagot-Campagna, 2000; Freedman et al., 1999; Nader et al., 2006; Magarey et al., 2003; Ogden et al., 2007).

Obesity and being overweight have been linked to many different physical and mental health-related problems and disabilities in childhood and adulthood, such as cardiovascular problems, orthopedic and skeletal abnormalities, lower self-concept, depression, and poor self-esteem among others (Crawford et al., 2001; Gillum, 1999; Han, Lawlor, & Kimm, 2010; Haslam & James, 2005; Lobstein, Baur, & Uauy, 2004). In a study by Janicke et al. (2008), 34% of children and adolescents ages 5 - 18 with an obesity-related health condition were found to have a comorbid psychiatric disorder diagnosis. In a study by Bacardi-Gascon, Leon-Reyes, and Jimenez Cruz (2007), 56% of non-overweight Mexican and American mothers and daughters preferred more non-obese children than obese ones for their children's friends. Similarly, 94% of mothers and

children ranked a child using a wheelchair higher than an overweight child as a potential friend. These results suggest a weight-based stigmatization towards overweight children. Among overweight children, tolerance for an obese child as a potential friend was only 2%. Research has extensively supported the detrimental physiological and psychological consequences of obesity during childhood, which continues through adulthood.

#### Parental Influence Feeding Behavior on Preschool Overweight and Obesity

Research has shown that there are many reasons for the development of childhood obesity, such as genetics, family demographics, beliefs and practices, the level of physical activity of the children, and societal factors (Gable & Lutz, 2000; Han, Lawlor, & Kimm, 2010). The preschool period is considered to be very crucial in the lifespan development of children. This is particularly the case for the development of unhealthy chronic diseases such as obesity, due to the fact that children are experiencing the adiposity rebound, the age at which body mass index (BMI) increases after its nadir in childhood (Dorosty et al., 1999; Whitaker et al., 1998). During this developmental stage, children start to develop their decision-making skills in food choice and begin to eat solid foods.

Crocetti, Dudas, and Krugman (2004) examined the frequency and the reasons that parents introduce solid foods to their children. It was found that 44% of parents introduced solid foods at less than four months of age. The exceptions to this were Latino caregivers and those who continued to breastfeed their children after four months of age, therefore delaying the introduction of solid foods. With regard to the reasons for introducing food, 80% of parents stated that children were not satisfied with breast milk or formula; 53% said that children slept better at night when they ate solid foods; and

76% stated that they were following proper infant feeding practices (Crocetti, Dudas, & Krugman, 2004).

The role of parents in childhood obesity/overweight involves many different layers. For instance, Hawkins and Law (2006) used an ecological framework to evaluate 59 studies for risk characteristics at the child, family, community, and social policies level. The studies involved overweight preschool children ages six months to five years. At the early childhood level, the authors found that increased breastfeeding, late weaning and limited bottle use are associated with the prevention of obesity/overweight in early childhood. For children ages 2 to 5, the authors found the need for further research to evaluate the association between fruit juice, sweetened drink or snack food consumption, and early childhood overweight. The authors also found some studies suggesting that preschool children are not engaging in the recommended physical activity for their age; instead, they are engaging in more sedentary activities such as watching television and other media use.

At the family level, some family characteristics and functions such as maternal overweight and parental circumstances (i.e., lower socio-economic status [SES], smoking during pregnancy, lack of/limited parental employment, and lower educational levels), family daily routines, parenting roles and communication have been associated with the development of obesity/overweight in general and particularly in preschool children (Hawkins and Law, 2006; Rhee 2008). These findings coincide with a study by Davison and Birch (2001), where it was found that child and parent characteristics strongly predicted change in the children' BMI. Families with overweight children appear to be more conflicted, stressed and apart (Rhee, 2008). Regarding the relationship between

SES and obesity, Zhang and Wang (2004) found that socioeconomic inequality of obesity in the United States differs according to age, gender and ethnic groups. In a study by Baughcum et al. (2001), obese mothers and low-income mothers were less structured in feeding their children and provided higher age-inappropriate feeding. Low-income mothers reported less difficulty in feeding, and more strongly pushed their children to eat more. Even though associations were found between the above-mentioned factors, low-family SES and obese mothers, they were not significant in relation to children being overweight (Baughcum et al., 2001).

At the community level, neighborhood factors (residential proximity to playgrounds or fast food restaurants, safety) and child care facilities have been associated with obesity/overweight in young children (Hawkins & Law, 2006). Even though policies could greatly moderate rates of obesity/overweight in childhood by strongly encouraging that healthy recommendations be followed by children, caregivers, and communities, the authors found no evidential links between policies and obesity.

Food preferences develop at a very young age and are influenced partly by internal variables such as genetic predispositions to certain types of foods and partly by external variables, such as parental influence. Benton (2004) examines this important question about how parents influence a beneficial or unhealthy dietary style in their children. Benton (2004) ascertains that children are influenced biologically by their genes and innate food preferences and also by parental style, emotional climate and cultural influences (Benton, 2004). At first, infants have an innate preference for sweet and salty flavors and tend to avoid any bitterness or sourness (Benton, 2004; Rosenstein & Oster, 1988; Steiner, 1979). It seems that at the beginning of life, food preferences are

heavily influenced by internal hunger cues (Benton, 2004). But as the child grows, the child's hunger cues relies on external environmental cues, and the child learns to eat less or more based on availability of food, food culture and what parents feed them (Benton, 2004; Fisher & Birch 2002). Infants and young children appear to reach a crucial point where they have the ability to regulate their energy intake according to their internal hunger and satiety cues (Rhee, 2008). As the children grow, they lose this ability and rely on external factors. At this point, the child's environment, especially parental behavior, becomes crucial in developing healthy eating behaviors in children.

One way parents shape the child's food preferences is by exposing the child to different types of food which can result in increased consumption, liking and ultimately preference for particular foods (Benton, 2004). These parental preferences may expose children to healthy foods such as fruits and vegetables and thus result in positive outcomes. On the other hand, parental preferences may also promote the consumption of snack foods, and could result in problems with weight. Another parental behavior is the portion size the parent provides to the child during meal times. By managing the portion size, the child is allowed to continue self-regulating their intake based on internal cues, instead of being overwhelmed by large portions (Benton, 2004).

The modeling of healthy eating behaviors in front of their children, and providing a positive emotional climate around meal times is another parental behavior (Benton, 2004). A combination of modeling with positive comments and social affect about food is a way for parents to promote healthy eating behaviors to their children. Unfortunately, modeling unhealthy eating behaviors can be as powerful and have as strong an effect as positive modeling (Rhee, 2008). Family meals are an important time for the family to

communicate and function as a family (Rhee, 2008). However, when family meals are inconsistent or stressful, children choose fewer healthy items and increase their food intake.

Feeding practices and beliefs become crucial in the relationship between obesity/overweight in early childhood and parenting. Thus, it is important to examine from where those beliefs and perceptions regarding healthy or unhealthy foods are derived. The article by Carruth and Skinner (2001) examines mothers receiving different information from various sources about feeding their children, depending on the age of the children. This information regarding feeding their children becomes part of a person's beliefs, which then becomes part of a person's behavior, and therefore becomes a social norm. For instance, during the 2-8-month period, mothers were mainly told by relatives and professionals about breastfeeding and formula, feeding schedule, and adding supplementary foods. During the 10-24-month period, mothers were advised by relatives (especially grandmothers), professionals and friends, with whom mothers would compare ideas and suggestions on how to introduce new foods. Some of the messages the mothers received were to add more supplementary foods and solid foods, and to wean the children off the bottle.

During the 27-54-month period, friends became a more frequent source of information for mothers than relatives and professionals. Mothers consulted with friends about what other children eat, where to buy certain foods, children's food preferences and how to make food appealing to them. Relatives provided less information about the children's feeding behavior, and focused on health issues such as decreasing unhealthy foods and increasing healthy foods. Also, professionals provided more information

related to health issues, specifically, familial health problems such as food allergies, weight gain, and high cholesterol tendencies. In sum, the information that mothers receive from many sources varies according to age of the child. In turn, this information is the basis of mothers' beliefs about feeding food to their children. These results support the importance of researching the roots of social norms that mothers have about those beliefs.

Baughcum et al. (2001) found parental concerns about being overweight were exhibited more often by mothers with overweight children, who were also less concerned about their children being underweight. Obese mothers, low-income mothers and mothers of overweight children expressed a greater concern for child overeating and obesity. Some parent feeding practices or styles derived from parents' beliefs regarding food include restriction, pressure to eat, rewards, controlling food intake and accessibility. For instance, mothers of overweight children and obese mothers more often used food to calm their children (Baughcum et al., 2001).

Based on the model proposed by Constanzo and Woody (1985, as cited in Francis, Hofer, & Birch, 2001), parents can use restriction as a parenting feeding style. Francis, Hofer, and Birch (2001) found that mothers with their own concerns about weight and eating exhibited greater concern in restricting the food intake of their at-risk and overweight daughters. Research has shown that children who have restrictive access to food learn to eat in the absence of hunger, because they end up overeating whenever a certain food is available. However, many studies have not been able to establish causation between restriction and overeating (Benton, 2004; Rhee, 2008).

Another parental feeding style is pressure to eat. Studies showed that mothers used pressure to eat when their daughters were thinner or were perceived as underweight. In particular, overweight mothers pressured their daughters to eat more healthy foods when they were concerned about their daughters' future weight problem (Francis, Hofer, & Birch, 2001).

Another important parent feeding style explored by Benton (2004) is the use of rewards. Parents may reward children for eating a healthy food that usually is unappealing or unpleasant. For example, parents may indicate that unless the child eats all the vegetables in a meal, the child will not be able to eat dessert. The intent for this strategy is to increase the preference for the disliked food, but oftentimes the opposite occurs (Birch, Marlin, & Rotten, 1984; Newman & Taylor, 1992). Rhee (2008) emphasizes that when parents use rewards to encourage eating, they are relying on an external factor instead of using the child's self-regulatory ability to know when the child is full and satisfied. In addition, the use of rewards is also related to the development of food preferences, increasing the value of a desirable food item (usually a dessert) and the diminishing the preference of another item (usually vegetables).

Another parental strategy is to pressure children to eat healthy foods. Through the use of encouragements and discouragements, parents either control or support their children's healthy food consumption during mealtime (Benton, 2004; Drucker et al., 1999; Rhee, 2008). For instance, children of parents who control their food intake experience difficulty in adjusting to the caloric density of meals, and use less internal cues when deciding to eat. Children of mothers who used more discouragements had larger Body Mass Index (BMI). Children who ate faster did so due to their mothers'

prompts; studies have shown that these children may be at-risk for later obesity. It seems that parents who exert more influence in the form of control, discouragement and prompting have children who are unable to regulate their food intake and are at risk for greater adiposity.

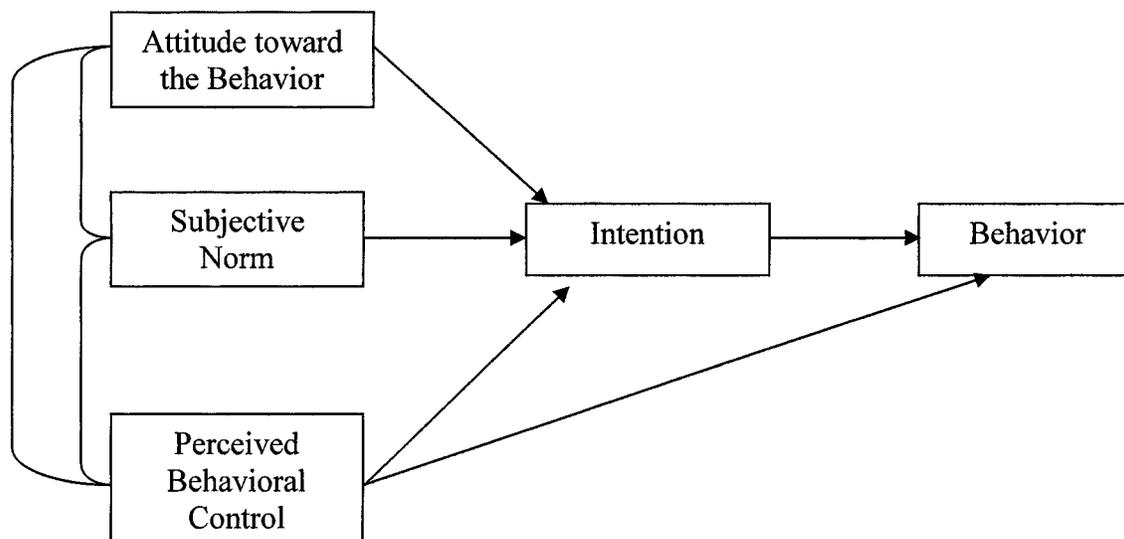
In sum, researchers have extensively examined parental influence of their children's eating behavior. Once the child starts eating solid foods, parents, along with the child's genetic makeup, play a vital role in the child's food preference development (Benton, 2004). Parental eating behaviors are influential by exposing children to novel and healthy foods, making healthy foods available, restricting unhealthy foods to children, providing adequate portion sizes according to the children's age, and encouraging children to hear their internal hunger and satiety cues. Parents also influence children's eating by selecting foods for the family diet, modeling eating behavior, and by providing direct instruction on when, where, what and how much to eat (Constanzo & Woody, 1985 as cited in Francis, Hofer, & Birch, 2001; Johnson & Birch, 1994). Lastly, parents influence their children's eating behavior with their parenting beliefs, practices and style (Baughcum et al., 2001; Carruth & Skinner, 2001; Rhee, 2008).

#### Overview of the Theory of Planned Behavior (TPB): Concept and Usefulness

Several studies have developed instruments based on theories to assess the many variables surrounding childhood obesity; in particular, to assess parental feeding practices and beliefs. For instance, Baughcum et al. (2001) studied maternal feeding practices and beliefs and developed instruments, with the purpose of screening children at-risk of obesity and counseling parents on obesity prevention. They developed two instruments: the Infant Feeding Questionnaire, to assess feeding throughout infancy; and the

Preschooler Feeding Questionnaire (PFQ), to assess feeding in preschool years. Both questionnaires are based on the model proposed by Constanzo and Woody (1985). This study utilizes the Theory of Planned Behavior (TPB) to help explain some of the factors involved in the parental feeding behavior of young children.

The Theory of Planned Behavior (TPB) derives from the Theory of Reasoned Action, and states that behavioral intentions are the most proximal determinants of actual behavior (Ajzen, 1991). In turn, intentions are determined by attitudes toward the behavior, subjective norm (social pressure), and perceived behavioral control (PBC). First, PBC refers to the degree a person perceives the ease or difficulty of performing a specific behavior. Armitage and Conner (2001) examined the differences between PBC and self-efficacy, and perceived control. According to their results, PBC appears to be a powerful predictor of intention and behavior independent of self-efficacy. Second, subjective norm measures a person's beliefs and perception about the social pressure to comply with the recommendations of others and to engage in a specific behavior. It has been suggested that this variable is a weak predictor of intention and behavior; however, it is emphasized that this might be due to the fact that studies have only used single-item measures to test this variable (Armitage & Conner, 2001). It has been encouraged to re-examine the operational concept of the variable, since social pressure is rarely direct or explicit. Third, attitudes refer to the person's appraisal and beliefs about the consequences of a specific behavior (Ajzen 1991; see Figure 1). Armitage and Conner (2001) examined the efficacy of TPB in a meta-analytic review. Results from the meta-analysis provide support for the use of TPB in predicting intention and behavior.



*Figure 1.* Theory of Planned Behavior (Ajzen, 1991).

In addition, TPB has been used to explain healthy and unhealthy eating behavior by many researchers (Baker, Little, & Brownell, 2003; Conner, Norman, & Bell, 2002; Louis et al., 2007; Fila, & Smith, 2006; Hewitt & Stephens, 2007; Oygard & Rise, 1996; Povey et al., 2000). In a longitudinal study, healthy eating intentions and healthy eating behavior were predicted by TPB over a six-year interval. In addition, intentions were predicted cross-sectionally by PBC, but not prospectively. Lastly, the authors noticed intention stability becoming stronger and PBC becoming weaker in predicting future behavior, except when intention stability was low. In that instance, PBC was a stronger predictor of future behavior. In other research by Fila and Smith (2006), TPB—in addition to barriers and self-efficacy—was used to investigate healthy eating behavior in urban Native American youth, due to the high prevalence of obesity among that this ethnic group. Results showed that healthy eating intentions were not associated with the actual behavior, but both were independently predicted by attitudes, PBC and subjective

norms. The authors explained the lack of association between intention and the actual behavior as a lack of intention stability, since boys and girls are driven by external factors and are constantly changing. Louis et al. (2007) provided support of the use of TPB in explaining healthy and unhealthy eating. Results demonstrated that attitudes, subjective norms and PBC, in addition to referent group identification, predicted intentions to eat healthy, which then predicted the actual behavior two weeks later.

Moreover, TPB has been used to explain fruits and vegetables consumption and dietary habits, in addition to evaluating interventions to promote healthy food consumption (Bogers et al., 2004; De Bruijn et al., 2007; Gratton, Povey, & Clark-Carter, 2007; Lautenschlager & Smith, 2007; Pawlak & Malinauskas, 2008). The constructs of TPB were successfully used to explain intention and behavior of eating healthy and gardening of urban youth participating in a project that included gardening, cooking and consuming fruits, vegetables and ethnic foods (Lautenschlager & Smith, 2007). Attitude was the most predictive construct of pre-survey intention for both genders, compared to subjective norm or PBC. PBC was found to be associated with post-survey behavior in girls but not in boys. High levels of intention during pre-survey slightly predicted post-survey behavior in boys but not in girls. The garden project positively influenced the increased consumption of fruits and vegetables in boys but not in girls. Gratton, Povey, and Clark-Carter (2007) examined and compared the efficacy of a motivational-based intervention and a volitional intervention, based on the formation of an implementation intention in children's dietary behavior and intention to eat healthy food (mainly fruits and vegetables) using TPB constructs. Results demonstrated that both interventions were

found to have a significant effect on fruit and vegetable intake in comparison with the control group; however, consumption was greater in the volitional intervention group.

The previously-cited studies provide support to the validity of each of the constructs of TPB. TPB has been amply used in the study of many eating behaviors, such as healthy and unhealthy eating, food choice, and dietary habits and fruit and vegetable consumption. However, there seems to be a lack of research regarding mothers giving food to young children ages 2 to 5 years utilizing TPB.

#### Overview of the Current Study: Hypotheses and Purpose of the Study

A way to examine the development of childhood obesity is to focus on why parents give healthy or unhealthy foods to their children during their earlier years. In a study by Andrews, Silk, and Eneli (2010), the authors utilize TPB as a model to research the factors in promoting healthy eating and limiting unhealthy eating involved in the parent's tracking behavior of their children's food intake, especially children ages 2 to 5. In order to understand the development or causes in the prevalence of obesity/overweight in children ages 2-5, this study will examine the parental feeding behavior of children ages 2-5 utilizing the Theory of Planned Behavior (TPB). At such a young age, parents are considered the primary caregivers and most influential in the development of food choices (Benton, 2004).

A study by Hewitt, and Stephens (2007) provides support to the influence of parents in children's healthy eating behavior. The authors examined the role of parental influence on New Zealand children's intentions to consume healthy food using TPB. The authors concluded that children's intentions and behavior to eat healthy was partially mediated by PBC. The strongest predictors of intention were attitudes and subjective

norms. The authors also found that parental influence according to the theory of child feeding did not contribute to the children's behavior of eating healthy foods. However, the authors suggest that children's perceptions of their parents' attitudes appeared relevant and important as opposed to parental restriction or control.

TPB (including attitude, subjective norm, PBC and intentions) was applied to the prediction of parents giving healthy and unhealthy food. Feeding behavior refers to the parent giving healthy or unhealthy food to their children during a week. Healthy eating, as defined by Conner, Bell, and Norman (2002), is "in relation to the current dietary recommendations as being a diet low in fat, high in fiber, and high in fruit and vegetable consumption." (p.194). In this study, healthy food was generally narrowed to fruits and vegetables consumption, and unhealthy food was narrowed to junk/snack food, takeout food and fast food.

The hypotheses for the present study are:

Hypothesis 1 – Attitudes, subjective norms and perceived behavioral control associated with healthy foods will positively predict intentions of parents to give healthy foods (fruits and vegetables) to their children during the week.

Hypothesis 2 – Attitudes, subjective norms and perceived behavioral control associated with unhealthy foods will positively predict intentions of parents giving unhealthy foods to their children during the week.

This study is one of the few of its kind that it uses TPB in explaining parental feeding behaviors of preschool children. This study evaluates the influence that parents have over their children when they are giving them healthy or unhealthy food. Their reasons could be social pressure, attitudes towards giving them food, and/or how easy or

difficult is to give food. All these reasons could lead the parent to the intention, and ultimately to the behavior, of giving certain types of food to their children. The purpose of this study is to explain parental feeding behavior of preschool children, possibly leading to intervention or prevention programs to enhance the quality of life of parents and children.

## CHAPTER II

### METHODS

#### Participants and Procedures

792 parents with children ages 2 to 5 were recruited from the Head Start program in the city of San Marcos in Texas and various child development centers, preschools and daycare centers in the cities of Austin and San Marcos in Texas. Of the 792, 102 participants provided consent to participate (Appendix A), and completed the self-report questionnaire (Appendix B and C). Exclusionary criteria for the participants were if the parent or child suffered from any medical conditions that altered their eating habits. A total of 102 surveys were able to be used in the final analysis of data, which represents a 12.8% response rate.

Of the 102 participants, it is worth noting that 90.2 % were female and mothers with an age range of 19-55. The participants were mainly 40.2% Caucasian and 48% Latino. Other important salient sample characteristics included: 63.7% of the participants worked full time; 63.7% of the participants were married; 23.5% had earned a college degree and 30.4% earned an advanced college degree; 44.1% earned above \$50,001 a year. For further details on the demographics of the participants, please see Table 1.

The children of the participants were 32.4% Caucasians, 48% Latino with 44.1% boys and 55.9% girls. The age range of the children was between 2-5 years. Table 2 includes a detail description of the children of the participants from this study.

Table 1

*Demographics of the Participants (Parents N=102)*

	N	Percentage (%)
<b>Gender</b>		
Male	10	90.8
Female	92	9.8
<b>Ethnicity</b>		
White	41	40.2
Hispanic	49	48.0
Asian	1	1.0
African American	5	4.9
Other	6	5.9
<b>Marital Status</b>		
Single	21	20.6
Married	65	63.7
Divorced	4	3.9
Widowed	1	1.0
Living with Partner	8	7.8
Other	3	2.9
<b>Income</b>		
Less than \$15,000	20	19.6
\$15,001-\$25,000	17	16.7
\$25,001-\$35,000	9	8.8
\$35,001-50,000	10	9.8
Above \$50,001	45	44.1

Table 1-Continued

*Demographics Characteristics of Sample of Parents (N=102)*

	<b>N</b>	<b>Percentage (%)</b>
<b>Education</b>		
Less than High School	11	10.8
High School Diploma	21	20.6
Some College	14	13.7
College Degree	24	23.5
Advance College Degree	31	30.4
<b>Working Hours</b>		
Full time	65	63.7
Part time	17	16.7
Unemployed	6	5.9
Stay-at-home-parents	14	13.7

Table 2

*Demographics of the Participants' Children (N=102)*

	<b>N</b>	<b>Percentage (%)</b>
<b>Gender</b>		
Male	45	44.1
Female	57	55.9
<b>Ethnicity</b>		
White	33	32.4
Hispanic	49	48.0

Table 2-Continued

*Demographics Characteristics of Sample of Children (N=102)*

	N	Percentage (%)
Asian	0	0.0
African American	7	6.9
Other	13	12.7

The Institutional Review Board of Texas State University-San Marcos and all the above-mentioned locations where data were gathered approved this study. The author sent a package of information, including instructions, informed consent form, and a self-report questionnaire, to the parents' home. The participants were instructed to read and sign the informed consent form, fill out the self-report questionnaire, and send back both documents to school the next day with their children. The participants received all the materials in English or Spanish. The instructions highlighted that their participation was entirely voluntary, and that the package was expected to take no more than 20 minutes. The data from the questionnaire were identified only by a code to maintain anonymity, and the name of the participant was not associated with the data. All consent forms were kept separated from the questionnaires. Upon completion of the study, a complete summary of the results was provided to the locations where the data was gathered, and briefing statements were sent to the homes of the participants.

Initially, participants were asked to keep all receipts obtained from groceries, eating out, and takeout food for the duration of one week. The researcher provided a self-addressed and paid envelope for the participants to turn in all the receipts. However, this part of the data collection was discontinued, due to the low response rate.

## Measures

### Demographic Measures

Demographic measures for the parents included: gender, age, race/ethnicity, current marital status, parental education level, hours working and income. Demographic measures for the children included gender, age and race/ethnicity. In an article by Crawford et al. (2001), the authors found a study by Olvera-Ezzell et al. (1990, cited by Crawford et al., 2001), where mothers with higher education were more likely to feed healthier foods to their children. However, the authors also found a weak link between parental SES and obesity, in part due to the lack of research. Some studies have found a less consistent inverse relationship between obesity and family income and education in young children, but the relationship grows stronger during adolescence, especially among girls (Crawford et al., 2001). The participants were asked about any medical conditions and dietary changes that the parent or child have had that interfered with how the parent gives food to the child.

### Questionnaire

The questionnaire was developed using the TPB procedures outlined by Ajzen (2006). The questionnaire assessed the main five components of the TPB with regard to the parents giving fruits, vegetables, junk food and fast food to children ages 2-5. One native Spanish speaker reviewed the Spanish questionnaire, and two bilingual translators utilized back-to-back translation to verify the validity of the questionnaire. All responses were given on a 5-point scale, equating to 1 representing being strongly disagree and 5 representing strongly agree.

Parents' attitudes toward giving healthy or unhealthy foods to their children were assessed with three items. Sample items include: "I think that giving fruits and vegetables to my children is necessary during the week," and "Giving fruits and vegetables to my children during the week is a beneficial thing to do." One item was removed from the final analysis because there were concerns about the scale's reliability (i.e. I think it is tasty to give fruits and vegetables to my children during the week.). The final alpha reliability for attitudes associated with healthy foods was 0.556, and attitudes associated with unhealthy foods was 0.716.

Subjective norms were measured by four items assessing the parents' social pressure to give healthy or unhealthy foods to their children. Sample items include: "Most people who are important to me think that I should," "My parents or relatives tell me that it is important to give," and "My friends think it is right that I give fruits and vegetables to my children during the week." One item was removed from the final analysis because there were concerns about the scale's reliability (i.e. I feel socially pressured to give candy, donuts, hamburgers, nuggets, chips, pizza to my children during the week). The final alpha reliability for subjective norms associated with healthy foods was 0.648 and subjective norms associated with unhealthy foods was 0.722.

Two items measured the parents' control (PBC) to give healthy or unhealthy foods to their children. Sample items include: "For me to give fruits and vegetables to my children during the week would be possible," "I am confident that I could give fruits and vegetables to my children in the following week." Two items were removed from the final analysis because there were concerns about the scale's reliability (i.e. the decision to give fruits & vegetables to my children during the week is beyond my control; and

whether or not I give to my children candy, donuts, hamburgers, nuggets, chips, pizza to my children during the week is completely up to me). The final alpha reliability for PBC associated with healthy foods was 0.672 and PBC associated with unhealthy foods was 0.841.

Three items measured parents' intentions to give healthy or unhealthy foods to their children. Sample items include: "I want to", "I intend to", and "I am sure I will give fruits and vegetables to my children during the week." The alpha reliability for intentions associated with healthy foods was 0.8 and attitudes associated with unhealthy foods was 0.809.

One self-reported measure of behavior was used. Participants were asked how many days in the past week they have given fruits and vegetables or donuts, candy, hamburgers, nuggets, chips and pizza to their children.

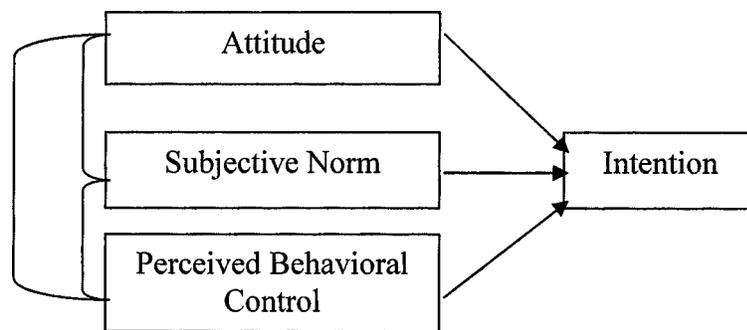
#### Statistical Analysis

The analysis was based on 102 questionnaires with complete data. The statistical analysis used in this study was stepwise regression against intent to analyze the results. All analyses were conducted using Statistical Package for Statistical Sciences (SPSS, v. 16.0, Chicago, IL, 2007). Descriptive statistics were used to determine means and frequencies of the constructs and to summarize the demographic data.

## CHAPTER III

### RESULTS

For all hypotheses, the initial model stated that attitudes, subjective norms and perceived behavioral control predict intentions, and in turn, intentions predict behavior. Initially, participants were asked to keep all receipts obtained from groceries, eating out, and takeout food for the duration of one week, and to mail them to the author in an included self-addressed and prepaid envelope. However, this part of the data collection was discontinued due to the low response rate; therefore, this behavior was not assessed and included in the final analysis (see Figure 2).



*Figure 2.* Reduced Model of the Theory of Planned Behavior.

Correlations, means and standard deviations for the main study variables are presented in Table 3. It is worth noting that when the variables associated with healthy or unhealthy foods correlated with their association counterpart of healthy or unhealthy foods, they resulted in negative correlations for the most except for the correlation of PBC associated with healthy and unhealthy food that was a positive correlation.

Table 3

*Correlations, Means and Standard Deviations of Main Study Variables*

		Associated with Healthy Foods				Associated with Unhealthy Foods			
		Parents (n = 102)							
Variables		Attitudes	SN	PBC	Intention	Attitudes	SN	PBC	Intention
Associated with Healthy foods	Attitudes	M 4.86 SD .36	—	—	—	—	—	—	—
	SN	.384*	M 4.44 SD .61	—	—	—	—	—	—
	PBC	.267**	.521*	M 4.74 SD .62	—	—	—	—	—
	Intention	.266**	.388*	.493*	M 4.76 SD .49	—	—	—	—
Associated with Unhealthy foods	Attitudes	-.332*	-.247***	-.123	.140	M 1.47 SD .68	—	—	—
	SN	-.133	-.310**	-.079	-.095	.376*	M 1.83 SD .67	—	—
	PBC	.190	-.016	.204***	.052	-.038	.312*	M 3.21 SD 1.31	—
	Intention	-.039	-.195***	-.267**	-0.82	0.437*	.268**	.259**	M 2.08 SD .84

Note. SD and means are noted diagonally. \*p<.001 \*\*p<.01 \*\*\* p<.5

### Results for Hypothesis 1

Attitudes, subjective norms and perceived behavioral control (PBC) associated with healthy foods will positively predict intentions of parents to give healthy foods (fruits and vegetables) to their children during the week. The initial model, including all variables, was not supported in the final analysis. The remaining model was statistically significant beyond the .001 level ( $\beta=.493$ ,  $p<.001$ ). The reduced model accounted for 24.3% of the variance in the intent of parents to give healthy foods to their children, and it was all unique to PBC associated with healthy foods (see Table 4 and 5).

Table 4

*Model Summary for Variables Predicting the Parental Intent to Give Healthy Foods to Children (N=102)*

<i>R</i>	<i>R</i> <sup>2</sup>	<i>Std. Error of the Estimate</i>	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 1					
.493	.243	1.28544	1	100	.000

Table 5

*Summary of Coefficients for Variables Predicting the Parental Intent to Give Healthy Foods to Children (N=102)*

<i>Variable</i>	<i>B</i>	<i>Std. Error</i>	<i>t</i>	<i>Sig.</i>	<i>Correlations Part</i>
Step 1					
HPBC2	.584	.103	5.668	.000	.493

### Results for Hypothesis 2

Attitudes, subjective norms and perceived behavioral control (PBC) associated with unhealthy foods will positively predict intentions of parents giving unhealthy foods to their children during the week. The initial model, including all variables, was not supported in the final analysis. However, the remaining model was statistically significant beyond the .01 level overall. The beta standardized coefficient for attitudes and PBC associated with unhealthy foods was .448 ( $p < .001$ ) and .276 ( $p < .01$ ), respectively. This reduced model accounted for 26.7 % of the variance in the intent of parents to give unhealthy foods to their children (see Table 6). 19.9% of this variance was unique to attitude and 7.6% was unique to PBC, both associated with unhealthy foods (see Table 7). There is a very small and not significant common part variance in the intent of parents to give unhealthy foods to be accounted by attitude and perceived behavioral control combined.

Table 6

*Model Summary for Variables Predicting the Parental Intent to Give Unhealthy Foods to Children (N=102)*

<i>R</i>	<i>R</i> <sup>2</sup>	<i>Std. Error of the Estimate</i>	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>
Step 2					
.517	.267	2.17682	1	99	.002

Table 7

*Summary of Coefficients for Variables Predicting the Parental Intent to Give Unhealthy Foods to Children (N=102)*

Variable	B	Std. Error	t	Sig.	Correlations Part
Step 2					
UAttitude3	.555	.107	5.202	.000	.447
UPBC2	.265	.083	3.211	.002	.276

## CHAPTER IV

### DISCUSSION

#### Interpretation of Results

Many researchers have examined the impact of parental behavior on the development of children's eating behavior; especially in the development of childhood obesity. Researchers have examined parental beliefs, attitudes and style, and how those influence children's eating behavior. This study focused on parental perceived control, beliefs and perception, and attitudes towards the intent to give healthy or unhealthy foods to children ages 2 to 5. I found that when it comes to the intention to give healthy foods, parental perceived behavioral control is a key construct to take into account. Parental attitudes and perceived behavioral control regarding unhealthy foods were found to be predictive of the intention to give unhealthy foods. It is important to note that the attitudes and the perceived behavioral control were found to be independent of each other in explaining the intent of parents to give unhealthy foods to their children. In particular, attitudes appear to play more of a part in giving unhealthy foods to children.

These findings provide needed information to prevention programs that target parents as promoters of a healthy way of living for themselves and their children. These findings also show that parents' influence is powerful. Further, there is a need to empower parents to be more conscious of the role they play in the development of the eating habits of their children. A review of the literature regarding interventions and

prevention programs notes that there was a greater reduction in the children's weight when parents were included in the intervention (Bluford, Sherry, & Scanton, 2007). Parental behavioral changes serve as role models for healthier eating, and increased physical activity in children. In particular, parental involvement is a critical factor in better controlling the environment and weight status of children, monitoring their behavior, setting goals, and rewarding desirable behavior in children (2005, as cited in Bluford, Sherry, & Scanton, 2007).

As previously stated, preschool children are constantly developing their food preferences, which are primarily shaped by what they learn from their parents. Children learn about eating behaviors based on the feeding strategies used by parents. In turn, those feeding strategies are rooted in parental attitudes and beliefs. Thus, parental attitudes teach children the attitudes that they should adopt regarding healthy and unhealthy foods. Children learn early on in their lives if unhealthy foods are necessary, valuable, and beneficial. For instance, food marketing, food availability and exposure, feeding strategies, modeling of eating and children's involvement in food preparation influences the diets of 5 to 6-year-old children (Campbell et al., 2006). In particular, parents who are confident in their parenting approach stated during part of a 2006 study that if they have certain foods at home, the child will eat them. In this way, parents determined what foods to have available to children. Parents were aware of how their personal beliefs and attitudes about their children's diets influenced their children's health and the foods they make available to their children. Parents were therefore part of their children's food preferences by controlling their own exposure to healthy or unhealthy foods (Campbell et al., 2006).

Overall, the results obtained from this study partially support those found by Andrews, Silk, and Eneli (2010). In their article, the authors found that all TPB's constructs (the parents' attitudes, perception of social norms and perceived behavioral control regarding promoting healthy foods and limiting unhealthy foods) predicted the intention and behavior of parents tracking their children's food intake. However, this study predicts the intention of parents giving food to their children. The ethnic background of the samples between this study and theirs differ in that their sample was mainly Caucasian (74.6%), with Latino and/or Mexican-American individuals only comprising 4% of the total participants. In this study, the sample included 48% Latino participation, with 40.2% Caucasian participation. The educational level of the samples in both studies were similarly high in that over 50% of the both samples were college graduates and with advanced graduate degrees.

As for the reasons why subjective norms did not significantly predict the intent of parents to give healthy or unhealthy foods, it is possible that the social norms about what are healthy or unhealthy foods may not have been a relevant construct, or were somehow expected or implicit. Godin and Kok (1996) found subjective norms to be one of the weakest of predictors of intention and subsequent behavior. In an article by Croker et al. (2009), the researchers found that normative information, which is mostly descriptive information about what is healthy, was relevant to their participants instead of what subjective norm is attempting to assess. It seems that there is a need to better define this construct.

It is important to note that 24% of the parents had graduated from college, and 30% had advanced college degrees, 44% earned over \$50,000 and 48% and 40.2% of the

parents identified themselves as Hispanic and Caucasian, respectively. The parents from this sample were mostly educated and from middle class backgrounds. Income and education can be used to define the concept of socioeconomic status (SES; Callahan & Eyberg, 2010). SES has been linked to healthy eating and to obesity in general (Wamala, Wolk, & Orth-Gomér, 1997). Higher incomes lead to more accessibility to organic and less-processed foods. For instance, Beydoun and Wang (2008) found that a diet including vegetables and fruits was positively associated with education and income.

It may also be possible that dietary acculturation may explain the link between attitudes and perceived control towards healthy or unhealthy foods. Dietary acculturation occurs when parents replace their traditional foods for the foods of their host country, as part of the process of adapting to a new culture. Parents believe that by doing this, they are consolidating themselves to the new culture (Romero-Gwynn & Gwynn, 1997). A study examining preschooler feeding practices, beliefs and levels of acculturation among Women, Infants and Children (WIC) Spanish and English-speaking Hispanic clients found that the feeding practice most widely used by parents was positive incentives. Moreover, parents reported to be more concerned with under-eating. Additional parental feeding practices include allowing children to choose their own food, and not using food as a way to calm their children (Seth et al, 2007). In particular, English-speaking Hispanic parents indicated that by pressuring children to eat more and using positive incentives, they were exerting more control over what their children ate. These findings do not support those found in this study.

The reliabilities were consistently lower for all the constructs predicting parents' intention to give healthy foods, as compared to the constructs involved in predicting

parents' intention to give unhealthy foods. Perhaps unhealthy foods are easily understood and more accessible to the general population. However, this is not the case with healthy foods, which need to be defined in a clearer and more uniform way. Researchers, community and government agencies have differed about the specific criteria for what are considered to be healthy foods (Glanz et al., 2005). There is a need for a consensus definition.

### Limitations

There were a number of methodological limitations. First, the use of self-report data may allow some biases to affect study results. Initially, the participants were asked to keep their food receipts for a week. The actual behaviors were supposed to be measured by all their groceries, eating out and take-out food receipts for a week. The researcher would have tallied the times the participants brought home fruits, vegetables, junk foods and fast foods for their children to consume. However, this part of the data collection was discontinued due to the lack of participation, and was eventually removed from the data collection. Armitage and Conner (2001) examined the validity of self-reported behaviors as opposed to observed behaviors. Results show that this is not an issue for TPB; however, the author encourages using accurate measures of actual behavior nevertheless.

Second, the low response rate calls for more creative recruitment methods for future research. Without tangible rewards for participants to take part in a study, it is difficult to recruit the necessary sample. In addition, the low response rate produced a small sample, which limits the power of generalization of the results to the population.

Third, another limitation of this study is the lack of clarity regarding the general concept of what healthy and unhealthy foods entails, as previously mentioned. Further research is necessary to assess what constitutes healthy or unhealthy foods. The generalizability of the results found from this study is limited to the characteristics of the sample.

Another relevant limitation was the low reliability coefficients of some of the constructs. According to Armitage and Conner (2001), it was suggested that the subjective norm construct is weak in predicting intention and behavior, due to the common use of a single item. In the present study, I created 5 items to assess this construct; however, only 4 items were used in the final analysis. Even though I had more items to assess this construct, it was not enough to produce any statistically significant results.

Finally, this study was primarily limited to mothers with preschool children. Efforts should be made in to include fathers and other caregivers in future studies.

### Recommendations

Based on the results of this research, new questions emerged, and the need for further research was shown. It would be interesting to see how the results could change if the sample size was bigger. This could allow for an improved representation of different ethnic groups and an observable measurement of the actual behavior for the parent.

In addition, it would be interesting to examine the relationship of TPB with other constructs related to parenting feeding, such as feeding style, parenting style, self-and efficacy. For instance, according to Drucker et al. (1999), a mother who scores high on a

control scale will use more coercive prompts, thus indirectly affecting a child's eating behavior. It would be interesting in follow-up studies to include an observable measure on children's food intake, to see the effect of the parental feeding behavior. This is consistent with Johnson and Birch (1994), who found that controlling the children's food intake was related to the children's difficulty in regulating such food intake. It would be interesting to see the role PBC plays in the actual control a parent exerts on the children's eating behavior and ability to regulate their food intake. Further research is needed to help better define the role of parental control, with a more positive view that promotes healthy eating in children without coercing their innate ability to regulate their food intake. Such research also needs to include empowering the role of parents in this dietary decision-making process.

### Conclusions

This study of parental feeding behavior of children ages 2 to 5 provides relevant information that enriches the existing literature in the area of feeding behavior and TPB as a theoretical framework. It provides insights into the reasons why parents choose to feed healthy or unhealthy foods to their children. Results of this study indicate that the perceived control of the parent to intend to give healthy and unhealthy foods is crucial when the child is being fed. Also, it is particularly unique that parental attitudes towards unhealthy foods affect the intent to give unhealthy foods. Thus, these findings are important for prevention programs to focus on the parent's perceived control regarding healthy foods and attitudes regarding unhealthy foods when developing curricula to promote healthy lifestyles for children.

## APPENDIX A

### INFORMED CONSENT

#### English Version

**IRB REFERENCE NUMBER**      2009E6162      **CODE:**

#### **Informed Consent Form**

You are invited to participate in a study by Ana Maria Cabezas, a graduate student from the Health Psychology Program at Texas State University-San Marcos. You can contact her at 512-665-7726 or [ac1342@txstate.edu](mailto:ac1342@txstate.edu). You can also contact her supervisor Dr. Alex Nagurney at [an18@txstate.edu](mailto:an18@txstate.edu) or 512-245-3166.

This study evaluates the factors that lead to childhood obesity. Your participation will help understand your attitudes and beliefs about feeding your child. You are chosen to participate in this study because you are a parent.

Your participation will include the following steps:

- First, you will read and sign this informed consent form.
- Second, you will answer some questions about the food you serve to your child. Please fill it out and send it back to school.

You should not to put your name on the questions. Your informed consent and answers will be identified only by code to protect your privacy, and will be kept in a locked file cabinet for one year (until august 2010) and then destroyed.

The results from this study may be published but your name will not be revealed. You may receive the summary of the results by contacting Ana Maria at [ac1342@txstate.edu](mailto:ac1342@txstate.edu). Your participation will be very useful for this study as well as for you because you could learn more about healthy eating to improve the diet and health of you and your family.

You will not run any risks in participating in this study. Your participation is entirely voluntary, and you can end your participation in this study at any moment without any problem. You can also choose not to answer any question for any reason. If you would like to find professional help related to parenting or childhood obesity, please contact: Hays Caldwell Women Center, 512-396-3404, [www.hwcw.org](http://www.hwcw.org); Safeplace, 512-267-7233, [www.safeplace.org](http://www.safeplace.org); Lifeworks, 512-735-2400, [www.lifeworksaustin.org](http://www.lifeworksaustin.org).

If you have any questions about this study, your rights as a participant or any other possible study-related injuries, you may contact Dr. Jon Lasser at 512-245-3413 (Institutional Review Board chairperson), and Ms. Becky Northcut at 512-245-2102 (Office of Sponsored Programs administrator).

\_\_\_\_\_  
Participant's name

\_\_\_\_\_  
Participant's signature/Date

Ana Maria Cabezas  
\_\_\_\_\_  
Researcher's name

\_\_\_\_\_  
Researcher's signature/Date

### Spanish Version

**IRB NÚMERO DE REFERENCIA 2009E6162**

**CÓDIGO:**

### **Formulario de Consentimiento Informado**

Usted está invitado/a a participar en una investigación dirigida por Ana María Cabezas, estudiante de Maestría del Programa de Psicología de la Salud de Texas State University-San Marcos. Usted puede comunicarse con Ana María al número 512-665-7726 o a su correo electrónico [ac1342@txstate.edu](mailto:ac1342@txstate.edu). Usted, también puede comunicarse con su supervisor, Dr. Alex Nagurney, al número 512-245-3166 o a su correo electrónico [an18@txstate.edu](mailto:an18@txstate.edu).

Esta investigación evalúa los factores que llevan a la obesidad infantil. Su participación ayudará a entender sus creencias y actitudes como padre o madre acerca de la comida que le sirve a su hijo/a. Usted ha sido escogido/a para participar en esta investigación porque es padre o madre de familia.

Su participación consistirá en los siguientes pasos:

- Primero, tendrá que firmar el formulario de consentimiento informado.
- Segundo, contestará unas preguntas acerca de la comida que le sirve a su hijo/a. Por favor llene el cuestionario y mandelo de regreso con su hijo a la escuela.

Usted no debe poner su nombre en las respuestas. Su consentimiento informado y, sus respuestas serán identificados con un código para proteger su privacidad y serán guardados bajo llave en un archivador por un año (hasta agosto del 2010) y después serán destruidos.

Los resultados de la investigación podrían ser publicados pero su nombre no será revelado. Usted podrá recibir un resumen de los resultados escribiendo a Ana María al siguiente correo [ac1342@txstate.edu](mailto:ac1342@txstate.edu). Su participación será de gran ayuda para esta

investigación y para usted, ya que le ayudará aprender más acerca de una dieta saludable para usted y su familia.

Usted no correrá ningún riesgo por participar en esta investigación. Su participación es totalmente voluntaria y en cualquier momento puede terminarla sin ningún problema. También se puede negar a contestar cualquier pregunta. Si desea ayuda profesional acerca de la crianza de sus hijos o acerca de la obesidad infantil, puede llamar a Hays Caldwell Women Center, 512-396-3404, [www.hcwc.org](http://www.hcwc.org); Safeplace, 512-267-7233, [www.safeplace.org](http://www.safeplace.org); Lifeworks, 512-735-2400, [www.lifeworksaustin.org](http://www.lifeworksaustin.org).

Si tiene alguna pregunta acerca de esta investigación o sobre sus derechos como participante o algún otro problema relacionado con esta investigación, puede llamar a Dr. Jon Lasser (512-245-3413) del Institutional Review Board, o a Becky Northcut (512-245-2102), administradora del Office of Sponsored Programs.

\_\_\_\_\_  
Nombre del Participante

\_\_\_\_\_  
Firma del Participante/ Fecha

Ana María Cabezas  
Nombre de la Investigadora/ Fecha

\_\_\_\_\_  
Firma de la Investigadora/ Fecha

**APPENDIX B**

**DEMOGRAPHIC QUESTIONNAIRE**

English version

**Date of interview:**

**CODE:**

**Information about the parent:**

**Your gender:**       Female       Male      **Your age:** \_\_\_\_\_

**Are you Hispanic or Latino/a?**       Yes       No

**Current Marital Status:**       Single       Married       Divorced  
 Widowed       Living with partner       Other

**Annual household income:**       Under 15,000       15,001-25,000  
 25,001-35,000       35,001-50,000       above 50,001

**Parental Education:**       Less than high school degree       Some college  
 High school degree       College degree       Advanced college degree

**Work Hours:**       Full time       Part-time  
 Unemployed       Stay at home parent

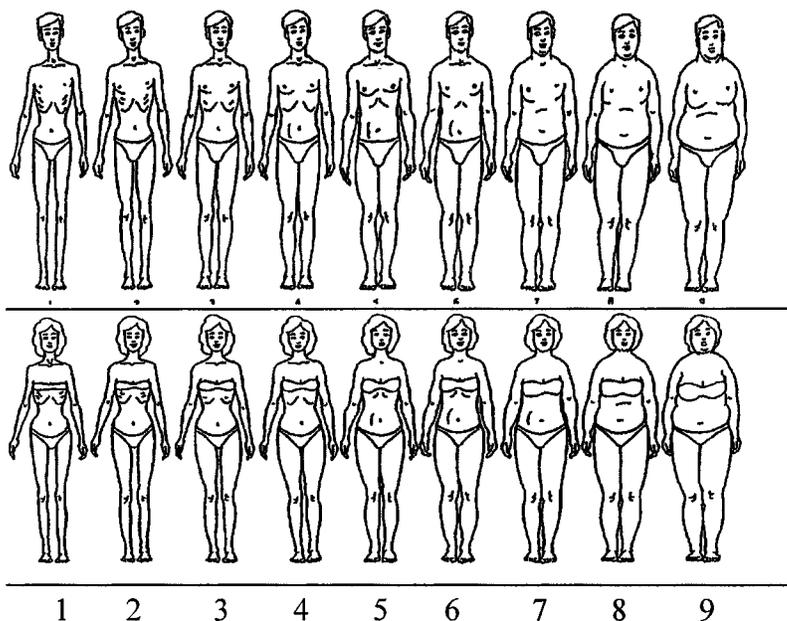
**Do you have any medical condition that alters your eating habits?**       Yes       No

If yes, please list them \_\_\_\_\_

**Primary language spoken at home:** \_\_\_\_\_

Other languages: \_\_\_\_\_

**Please pick the figure that best represents you at this moment.**



**\*When filling out this questionnaire, please think of one of your children between the ages of 2-5\***

**Information about the child:**

**Gender of child:**     Female     Male    **Age of child:** \_\_\_\_\_

**Your relationship to the child:** \_\_\_\_\_

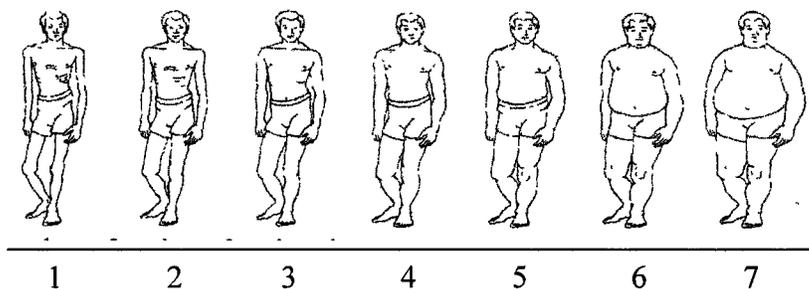
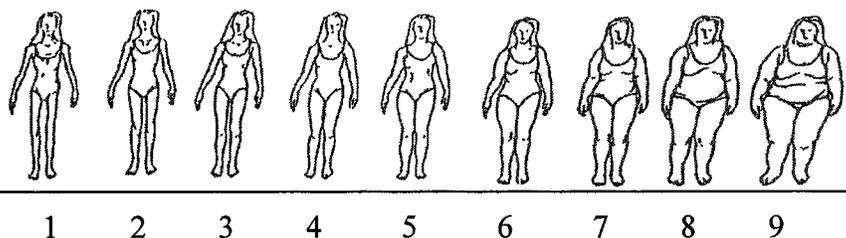
**Is your child Hispanic/Latino/a?**     Yes     No

If not, list the race/ethnicity of the child \_\_\_\_\_

**Does your child have any medical condition that alters his/her eating habits?**

Yes     No    If yes, please list them \_\_\_\_\_

Please pick the figure that best represents your child at this moment.



Please answer the following questions to the best of your ability.

1. How many days in the past week have you given **fruits & vegetables** to your children?

3. How many days in the past week have you given **donuts, candy, hamburgers, nuggets, chips, pizza** to your children? 1 2 3 4 5 6 7

5. Do you feel that you have enough time to cook?  Yes  No

6. I really like to cook. 1 2 3 4 5  
 Strongly Disagree Neutral Agree Strongly  
 Disagree Agree

9. Who typically gives the children food? \_\_\_\_\_

Spanish Version

Día de la entrevista:

CÓDIGO:

**Información del adulto entrevistado:**Sexo:  Femenino  Masculino

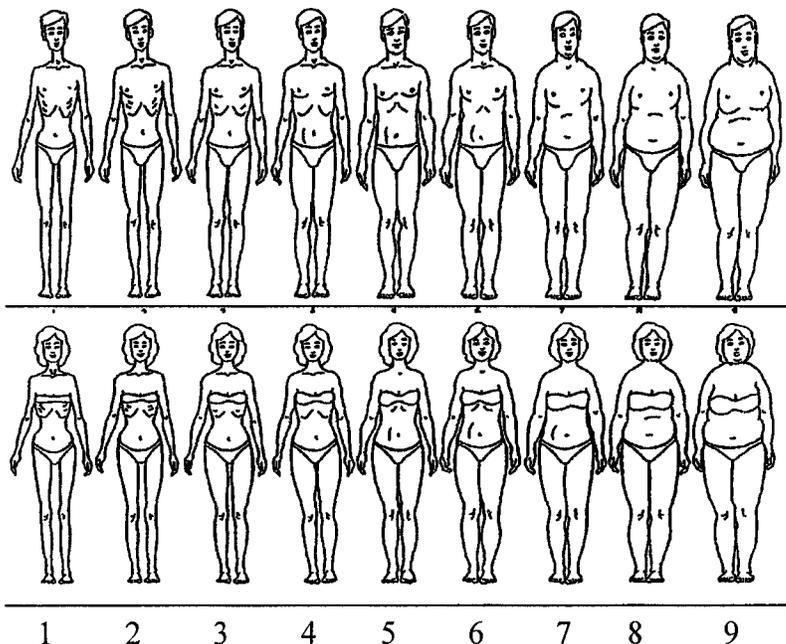
Su edad: \_\_\_\_\_

¿Es usted Hispano o Latino/a?  Si  NoEstado Civil:  Soltero/a  Casado/a  Divorciado/a  Viudo/a Viviendo con pareja  OtroIngresos Anuales:  Menos de 15,000  15,001-25,000  25,001-35,000 35,001-50,000  Más de 50,001Nivel de Educación:  Menos que la secundaria o preparatoria Diploma de la secundaria  Otros diplomas después de la secundaria Diploma de la Universidad  Estudios avanzadosHoras de Trabajo:  Tiempo completo  Medio Tiempo Desempleado/a  Ama/o de casa¿Tiene alguna condición médica que altera sus hábitos de comer?  Si  No

Si es cierto, por favor escriba la(s) enfermedad(es) \_\_\_\_\_

Lenguaje o idioma principal que se habla en el hogar: \_\_\_\_\_

Otros lenguajes o idiomas: \_\_\_\_\_

**Por favor escoja la figura que mejor representa a usted en este momento.**

**\*Mientras llena este cuestionario, por favor piense en uno de sus hijos de 2 a 5 años de edad\***

**Información del infante:**

**Sexo del niño/a:**  Femenino  Masculino

**Edad del niño/a:** \_\_\_\_\_

**Su relación con el niño/a:** \_\_\_\_\_

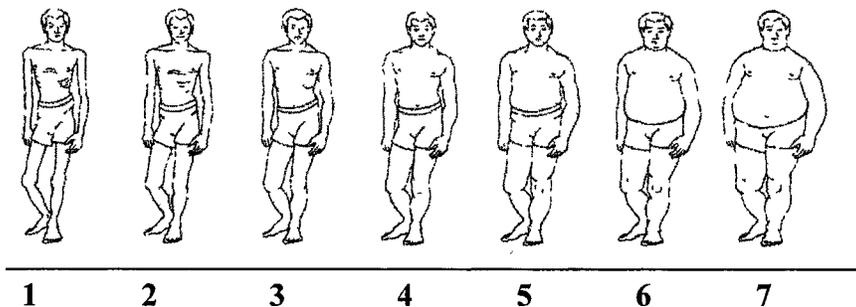
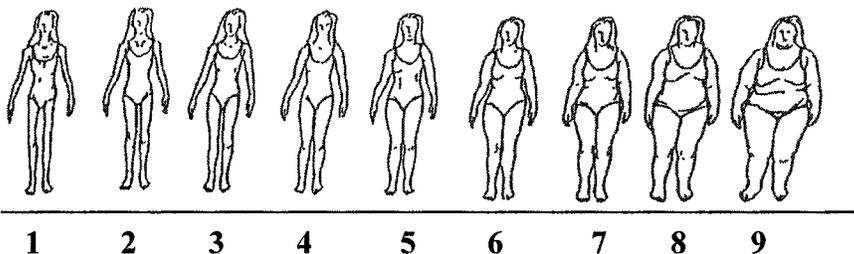
**¿Es su hijo/a Hispano/Latino?**  Sí  No

Si no lo es, por favor liste la raza/etnicidad del niño/a \_\_\_\_\_

**¿Tiene su hijo/a alguna condición médica que altera sus hábitos de comer?**

Sí  No Si es cierto, por favor escriba la(s) enfermedad(es) \_\_\_\_\_

**Por favor escoja la figura que mejor represente a su hijo/a en este momento.**



**Por favor responda las siguientes preguntas.**

1. ¿Cuántos días de la semana pasada usted dió de comer a su hijo/a **frutas y vegetales** en la cena?

2. ¿Cuántos días de la semana pasada usted dió de comer a su hijo/a **caramelos, donuts, hamburguesas, chips, nuggets, pizza** en la cena? 1 2 3 4 5 6 7

3. ¿Usted siente que tiene suficiente tiempo para cocinar?  Sí  No

4. Me gusta mucho cocinar 1 2 3 4 5

Totalmente Desacuerdo Neutral De acuerdo Totalmente  
en desacuerdo de acuerdo

5. ¿Quién típicamente da de comer a su hijo/a? \_\_\_\_\_

## APPENDIX C

### TPB QUESTIONNAIRE

#### English version

Please mark the degree to which you agree with the following statements with 5 being Strongly Agree and 1 being Strongly Disagree. Please choose only answer per question.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I want to give <b>fruits &amp; vegetables</b> to my children during the week.	1	2	3	4	5
2. I want to give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week.	1	2	3	4	5
3. I intend to give <b>fruits &amp; vegetables</b> to my children during the week.	1	2	3	4	5
4. I intend to give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week.	1	2	3	4	5
5. I am sure I will give <b>fruits and vegetables</b> to my children during the week	1	2	3	4	5
6. I am sure I will give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week	1	2	3	4	5

7. Giving <b>fruits &amp; vegetables</b> to my children during the week is a <u>beneficial</u> thing to do.	1	2	3	4	5
8 Giving <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week is a <u>beneficial</u> thing to do.	1	2	3	4	5
9. Giving <b>fruits &amp; vegetables</b> to my children during the week is <u>valuable</u> .	1	2	3	4	5
10. Giving <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week is <u>valuable</u> .	1	2	3	4	5
11. I think it is <u>tasty</u> to give <b>fruits and vegetables</b> to my children during the week.	1	2	3	4	5
12. I think it is <u>tasty</u> to give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week.	1	2	3	4	5
13. I think that giving <b>fruits and vegetables</b> to my children is <u>necessary</u> during the week.	1	2	3	4	5
14. I think that giving <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children is <u>necessary</u> during the week.	1	2	3	4	5
15. Most people who are important to me think that I should give <b>fruits &amp; vegetables</b> to my children during the week.	1	2	3	4	5

16. Most people who are important to me think that I should give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week.	1	2	3	4	5
17. It is expected of me that I give <b>fruits &amp; vegetables</b> to my children during the week.	1	2	3	4	5
18. It is expected of me that I give <b>candy, donuts hamburgers, nuggets, chips, pizza</b> to my children during the week.	1	2	3	4	5
19. I feel under social pressure to give <b>fruits &amp; vegetables</b> to my children during the week.	1	2	3	4	5
20. I feel under social pressure to give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week.	1	2	3	4	5
21. My friends think it is right that I give <b>fruits and vegetables</b> to my children during the week	1	2	3	4	5
22. My friends think it is right that I give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week	1	2	3	4	5
23. My parents or relatives tell me that it is important to give <b>fruits and vegetables</b> to children during the week.	1	2	3	4	5
24. My parents or relatives tell me that it is important to give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to children	1	2	3	4	5

during the week.					
25. For me, it would be possible to give <b>fruits &amp; vegetables</b> to my children during the week.	1	2	3	4	5
26. For me, it would be possible to give <b>donuts, candy, hamburgers, nuggets, chips, pizza</b> to my children during the week.	1	2	3	4	5
27. I am confident that I could give <b>fruits &amp; vegetables</b> to my children in the following week.	1	2	3	4	5
28. I am confident that I could give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children in the following week.	1	2	3	4	5
29. The decision to give <b>fruits &amp; vegetables</b> to my children during the week is beyond my control.	1	2	3	4	5
30. The decision to give <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week is beyond my control.	1	2	3	4	5
31. Whether or not I give <b>fruits &amp; vegetables</b> to my children during the week is completely up to me.	1	2	3	4	5
32. Whether or not I give to my children <b>candy, donuts, hamburgers, nuggets, chips, pizza</b> to my children during the week is completely up to me.	1	2	3	4	5

## Spanish Version

<p><b>Por favor marque que tan de acuerdo usted está con las siguientes afirmaciones donde 5 quiere decir que usted está Totalmente de Acuerdo y 1 quiere decir que usted está Totalmente en Desacuerdo. Por favor escoja una sola respuesta por pregunta.</b></p>	<p><b>Totalmente en desacuerdo</b></p>	<p><b>Desacuerdo</b></p>	<p><b>Neutral</b></p>	<p><b>De acuerdo</b></p>	<p><b>Totalmente de acuerdo</b></p>
<p>1. Yo quiero dar de comer a mi hijo <b>frutas y vegetales</b> en esta semana.</p>	1	2	3	4	5
<p>2. Yo quiero dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana.</p>	1	2	3	4	5
<p>3. Yo tengo la intención de dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana.</p>	1	2	3	4	5
<p>4. Yo tengo la intención de dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana.</p>	1	2	3	4	5

5. Yo estoy seguro que le daré a mi hijo <b>frutas y vegetales</b> durante la semana.	1	2	3	4	5
6. Yo estoy seguro que le daré a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana.	1	2	3	4	5
7. Dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana es algo <u>beneficioso</u> que puedo hacer.	1	2	3	4	5
8. Dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana es algo <u>beneficioso</u> que puedo hacer.	1	2	3	4	5
9. Dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana es <u>valioso</u> .	1	2	3	4	5
10. Dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana es <u>valioso</u> .	1	2	3	4	5
11. Yo pienso que es <u>sabroso</u> dar de	1	2	3	4	5

comer a mi hijo <b>frutas y vegetales</b> durante la semana.					
12. Yo pienso que es <u>sabroso</u> dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana.	1	2	3	4	5
13. Yo pienso que dar a mi hijo <b>frutas y vegetales</b> durante la semana es <u>necesario</u> .	1	2	3	4	5
14. Yo pienso que dar a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana es <u>necesario</u> .	1	2	3	4	5
15. La mayoría de las personas que son importantes para mí piensan que yo debo dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana.	1	2	3	4	5
16. La mayoría de las personas que son importantes para mí piensan que yo debo dar de comer a mi hijo <b>caramelos, donuts, hamburguesas,</b>	1	2	3	4	5

<b>nuggets, chips, pizza</b> durante esta semana.					
17. Se espera que yo de comer a mi hijo <b>frutas y vegetales</b> durante la semana.	1	2	3	4	5
18. Se espera que yo de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante la semana.	1	2	3	4	5
19. Yo me siento bajo la presión de dar de comer a mi hijo <b>frutas y vegetales</b> durante la semana.	1	2	3	4	5
20. Yo me siento bajo la presión de dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante la semana.	1	2	3	4	5
21. Mis amigos piensan que es correcto que yo de comer a mi hijo <b>frutas y vegetales</b> durante esta semana.	1	2	3	4	5
22. Mis amigos piensan que es correcto que yo de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips,</b>	1	2	3	4	5

<b>pizza</b> durante esta semana.					
23. Mis padres o parientes me dicen que es importante dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana.	1	2	3	4	5
24. Mis padres o parientes me dicen que es importante dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana.	1	2	3	4	5
25. Para mi, dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana sería posible.	1	2	3	4	5
26. Para mi, dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana sería posible.	1	2	3	4	5
27. Yo estoy seguro que puedo dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana.	1	2	3	4	5
28. Yo estoy seguro que puedo dar de comer a mi hijo <b>caramelos,</b>	1	2	3	4	5

<b>donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana.					
29. La decisión de dar de comer a mi hijo <b>frutas y vegetales</b> durante esta semana está bajo mi control.	1	2	3	4	5
30. La decisión de dar de comer a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana está bajo mi control.	1	2	3	4	5
31. Si doy de comer o no a mi hijo <b>frutas y vegetales</b> durante esta semana es completamente mi decisión.	1	2	3	4	5
32. Si doy de comer o no a mi hijo <b>caramelos, donuts, hamburguesas, nuggets, chips, pizza</b> durante esta semana es completamente mi decisión.	1	2	3	4	5

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## VITA

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