PARENTING STYLE DIFFERENCES IN OVER-WEIGHT VERSUS NON-OVERWEIGHT CHILDREN AND THE POTENTIAL MODERATING EFFECTS OF SOCIOECONOMIC STATUS AND ETHNICITY

By

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"Know your own true worth and you shall not perish. Reason is your light and your beacon of Truth. Reason is the source of Life. God has given you Knowledge, so that by its light you may not only worship Him, but also see yourself in your weakness and strength," (Gibran, 2005, p. 881).

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CHAPTER I

INTRODUCTION

Child overweight is quickly finding its way to the top of pediatric concerns in current American society (Gable & Lutz, 2000). The latest statistics show that one in four children is overweight; a rate that has doubled in the past two decades and is still on the rise (Birch et al., 2001; Gable & Lutz; Haas et al., 2003; Patrick, Nicklas, Hughes, & Morales, 2005). In addition to prevalence, severity of overweight is also increasing which greatly enhances the importance of this issue (Strauss & Pollack, 2001; Troiano & Flegal, 1998). Beyond the numbers, child overweight has multiple implications for children. These costs are not only economic but psychosocial as well (Schonfeld-Warden & Warden, 1997). As described in a review by Morrill and Leach (1991), there are psychosocial and future implications for children who are overweight.

Associations have been discovered between child overweight and depression, low body esteem, negative peer interactions, feelings of alienation, anger, embarrassment, acting out behaviors, decreased social acceptance, and school avoidance. Adding to the ostracism that overweight children can face from their peers, teachers and other professional school staff can also denigrate children who are overweight. Effects also have been found on grade point averages for children who are overweight. Teachers and parents of overweight children have been found to report more behavior problems in these children as opposed to non-overweight children (Stradmeijer, Bosch, Koops, &

Seidell, 2000). Another discovery is that young adolescent girls who are overweight are more vulnerable to sexual abuse because offenders believe that they are less likely to report the offense due to factors such as low self-esteem (Oliver, 1988, as cited in Morrill & Leach).

The other arena of implications is that of the child's future. Children who are overweight have a much higher likelihood of remaining overweight in adulthood than do children who are not overweight (Baughcum, Burklow, Deeks, Powers, & Whitaker, 1998; Haas et al., 2003; Moran, 1999; Patrick et al., 2005). This is important because in adulthood, physical health problems such as diabetes and heart problems can become much more prevalent and the psychosocial implications can follow the individual into the work environment (Flegal, Carroll, Ogden, & Johnson, 2002; Moran; Schonfeld-Warden & Warden, 1997). Further, Rumpel and Harris (1994) report that overweight young adults have a lower income and are less likely to marry than their non-overweight counterparts. Child overweight is not caused by one factor. There is not a singular obesity gene and there is not a singular environmental issue to which overweight can be attributed. Rather, it is a complex, multi-faceted condition in which both "nature" and "nurture" factors play vital roles.

Genetics, in the nature category, plays an important role in body weight. Multiple studies have shown the relation between genetics and overweight (e.g., Bastarrachea, Cole, & Comuzzie, 2004; Clement, 2005; Damcott, Sack, & Shuldiner, 2003; O'Rahilly & Farooqi, 2006; Schonfeld-Warden & Warden, 1997). Genes related to weight help to regulate body weight and to determine responses to diet and exercise (Farooqi, 2006; Loos & Rankinen, 2005). Further, genes have been shown to effect hunger satiety and

food intake (O'Rahilly & Farooqi). Though their contribution to weight is significant and well-established, our genes are virtually unchanged in the past two decades, whereas the obesity epidemic has only risen to the forefront of our medical and social concerns during this time (Damcott, Sack, & Shuldiner). Parallel with continuing the search for bio-genetic relations to overweight, it is important to understand what else is changing in humans' lives to create this epidemic. Additionally, scientists cannot alter our genetic make-up. One cannot become un-predisposed to overweight. It is in this respect that genetics and environment are closely related.

A person may have a genotypic predisposition to obesity but environmental factors (such as lifestyle) bring out its phenotypic expression (Clement, 2005; Loos & Rankinen, 2005). Environment, in the nurture category, refers to the broad societal and cultural circumstances in which a person lives. This includes wide-ranging factors from political to geographical climate. Included are social behaviors that transcend regional, ethnic, or religious norms. Lifestyle refers to how one lives one's life and the factors that may influence those choices and behaviors, such as socioeconomic status (SES) and cultural aspects of ethnicity within the broader environmental context (e.g., choosing to exercise, regional food preferences, economic ability to buy healthy foods, etc.). Many people are now choosing to live a more sedentary lifestyle (Troiano & Flegal, 1998). Computer use, video games, and television are replacing the physically active childhood of past decades. Television and video game play usually rank among the top of listed causes of child overweight, by both professional and private citizens (Moran, 1999; Vandewater, Shim, & Caplovitz, 2004). This is mainly because of what Vandewater et al. refer to as the "couch potato" hypothesis. Time is spent watching television or

playing video games instead of another more physically challenging activity. In other words, children are spending more time in sedentary activities as opposed to engaging in more vigorous exercising activities. The same authors also note a second commonly proposed hypothesis: caloric intake is especially increased during television viewing, both from eating and the increased subjection to advertisements of non-nutritional foods. They explain that evidence has been found for children's increased requests of foods frequently seen advertised on television. Furthermore, children are actively making choices not to participate in more physical activities, such as physical education classes in school (Troiano & Flegal).

In a review of current articles concerning overweight, several other lifestyle factors were discussed (Foreyt & Poston, 2002). One aspect of lifestyle that was discussed by Foreyt and Poston was fast-food consumption. According to their review, associations have been made between increased weight and fast-food consumption. Since fast-food consumption is increasing, it follows that increased weight due to greater fast-food consumption is also increasing. Another lifestyle factor that these authors discuss is the increase in portion size. They cite studies that found the portions of food served by many fast-food restaurants exceed portion size standards set by the U.S. Department of Agriculture ranging from 28% to 700%.

Although not well researched, in theory, parenting style can play a role in many of these aforementioned aspects of lifestyle. Parenting style is the beliefs, attitudes, and behaviors that shape the context of parenting (Baumrind, 1966; Darling & Steinberg, 1993). Research has consistently shown that the effects of parenting in school-age children usually continue to impact the child through adolescence in regards to academic

and socioemotional outcomes (Glasgow, Dornbusch, Troyer, Steinberg, & Ritter, 1997). It is not unreasonable to conclude that the same effects would hold true for the relation between parenting style and child overweight, even though the literature on this topic is limited (Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006). It can be argued that parents are, in fact, managers of their child's lifestyle (Ladd, 1992). Depending upon the parenting style to which the parents subscribe, lifestyle choices can have positive or negative implications for children. For example, it may be that parental control, a parenting factor that varies with different parenting styles (Baumrind, 1989; Maccoby & Martin, 1983), could be linked with television viewing and video game play, in that parents can control or limit their children's television and video game use. Parents, as the child's agent to the outside world (Ladd), make the choices as to which foods are available to the child and how much food is available to the child (Birch, Fisher, & Davison, 2003). Parenting style and its specific effect on child overweight has only been researched on a limited scale (Rhee et al.), except in the context of feeding style (e.g., Baughcum et al., 1998; Birch et al., 2003; Birch et al., 2001). If this link is established, it can help in identifying another factor that relates to overweight and help in the intervention of and prevention of childhood overweight.

An aspect of environment which can influence lifestyle is socioeconomic status. Research has shown that people from a lower SES tend to be less healthy due to many factors which include less tendency to exercise and poorer diet (Eckersley, 2001; Schmitz et al., 2002). Risk of overweight also is increased by low SES (Haas et al., 2003; Rhee et al., 2006). In Gable and Lutz's (2000) study, for example, overweight families had a lower annual household income and their children watched more television and

participated in fewer hours of physically active play than the non-overweight families. Lindquist, Reynolds, and Goran (1999) reviewed several studies that found an inverse relationship between physical activity and SES. On the other hand, data from the National Longitudinal Study of Adolescent Health show an association for adolescents between higher physical activity levels, lower sedentary leisure habits and higher SES (Schmitz et al.). Omar, Coleman, and Hoerr (2001) listed three barriers cited by parents in their study that prevent them from providing nutritious meals to their children: scarcity of time, external challenges, and health problems of the child. Scarcity of time and external challenges are barriers particularly salient for parents from a lower SES. Their time may be less flexible due to employment criteria, such as shift working. External challenges can be lack of finances for childcare, which would leave children at home more making their own food choices, lack of transportation, and lack of finances to provide nutritious foods for their children (Omar et al.). Gable and Lutz state that healthier foods tend to be more of an investment in both time and money, which influences the availability of these types of foods in the home. These barriers would be assumed to diminish as SES increases.

Ethnicity also can be introduced as a variable when discussing environment. Most U.S. data suggest that specific population subgroups, such as ethnic minority groups, have a more common occurrence of overweight than European Americans. There is an especially high rate of childhood overweight for African-Americans and Native Americans (Birch et al., 2001; Salbe, Weyer, Lindsay, Ravussing, & Tataranni, 2002). In fact, in a study comparing five-year-old Native American children to a matched control group, the Native American children were 16% to 18% heavier and at a

five-year follow up study, these same children were then 50% heavier than the matched control group (Salbe et al.). However, it is important to note that there is a deficiency of national data concerning overweight and the Native American population (Crawford, Story, Wang, Ritchie, & Sabry, 2001). This is alarming considering that the statistics available show that Native Americans may be one of the most at-risk groups for overweight. Other ethnic groups that have a higher occurrence of overweight are African-Americans and Hispanics. Strauss and Pollack's (2001) review of the data from the National Health and Nutrition Examination Survey III reports that the prevalence of overweight among African-American and Hispanics increased over 120% from 1998. Haas et al. (2003) also report that African-American and Hispanic children have a higher likelihood of overweight than European American children. Beyond the prevalence, African-American children, more than European American, Asian, or self-classification as "other" children, reported the highest levels of sedentary leisure habits (Schmitz et al., 2002). Ethnic minorities may also have a different attitude toward overweight. One study reports that African-American mothers and daughters prefer a heavier body size than their European American counterparts (Haas et al.).

Current Literature

Several aspects of the current study were explored in a recent article (Rhee et al., 2006). Rhee et al. examined the relation between parenting style and the overweight status of 872 children in first grade among the participants from the National Institute of Child Health and Human Development (NICHD) study. Parenting style was assessed in two ways: observation (maternal sensitivity) and questionnaire (maternal expectation). The authors posited that children from authoritative homes would be less likely to be at

risk of being overweight (over 85th percentile on BMI-for-age). They found that children from both authoritarian and permissive homes were more likely to be overweight than children from authoritative homes. A major difference between the Rhee et al. paper and the current study is that this study will be looking at the moderating effects of ethnicity and SES. Specifically, this current project will be focusing on European American and Native American children and there were no Native American children listed in the sample of children used in the Rhee et al. paper. Further, as will be discussed in more detail later, the participants examined in this study are considered rural and the participants from the Rhee et al. study can be considered more urban. The Rhee et al. study controlled for socioeconomic status and ethnicity. Another difference between the two studies is that the information for the variables of parenting style and child overweight was obtained within a few months of each other in this study, as opposed to two years apart in the Rhee et al. study. This could be a factor due to the dramatic developmental difference in children who are four-years-old as opposed to six-years-old. According to Rhee et al., the literature concerning parenting style and child overweight is limited. This study is an effort to expand this literature by re-examining some of the relations already found among parenting style and child overweight variables and examining these relations in the context of both ethnicity and SES. This expansion is vital considering that literature clearly shows that parenting style and overweight can vary within these specific groups.

Purpose of Study

The purpose of this study is to further the research in the environmental correlates of child overweight and gain a more complex understanding of the early development of

overweight. It is important to know if there is any type of relation between parenting style and child overweight. This study will explore the possible relations between parenting style and child overweight and the potential moderating effects of socioeconomic status and ethnicity on the relation between these two variables.

Research Questions

The following research questions will be explored:

1. Is there a relation between parenting style and child overweight?
2. Is parenting styles' relation with child overweight moderated by SES? And,
3. Is parenting styles' relation with child overweight moderated by ethnicity?

CHAPTER II

REVIEW OF LITERATURE

Conceptual Framework

There are two ways to think about parenting. There is the behavioral side and the philosophical side. The behavioral side is often referred to as parenting practices (Darling & Steinberg, 1993, Glasgow et al., 1997). Parenting practices may not necessarily be the same across all cultures (Wu et al., 2002). Darling and Steinberg define parenting practices as, "specific, goal-directed behaviors through which parents perform their parental duties," (p. 488). In general, parenting practices are domain-specific, meaning that they only occur in a given situation (Kremers, Brug, de Vries, & Engels, 2003). Examples of parenting practice are spanking, time out, or giving compliments. The philosophical side is referred to as parenting style, defined by Darling and Steinberg as, "a constellation of attitudes toward the child that are communicated to the child and that, taken together, create an emotional climate in which the parent's behaviors are expressed," (p. 488). Parenting style is exhibited across a vast array of situations and also can transcend cultural boundaries (Kremers et al.; Wu et al.). For example, in societies that value the elderly, a father telling his children that they must obey him out of respect for their elders is a philosophical belief that can be reinforced through a parenting practice of discipline. Thus, the global parenting style referred to in this study is the blend of parenting style (values) and parenting practices (behaviors).

There are two general dimensions of parenting style in which parents can be high or low: demandingness and responsiveness. Demandingness is the level of control, maturity demands, and supervision that people utilize throughout the course of their parenting (Aunola, Stattin, & Nurmi, 2000; Baumrind, 1989; Maccoby & Martin, 1983). Responsiveness, on the other hand, is the level of affective warmth, acceptance, and involvement that people show while parenting their children (Aunola et al.; Baumrind, 1989; Maccoby & Martin). Responsiveness affects the ability of the parent-child dyad to achieve synchrony (Baumrind, 1989; Harrist & Waugh, 2002). Each parenting style has its own unique combination of the dimensions and other related behaviors and many studies have shown that these parenting styles can aggravate or mitigate negative socioemotional and academic outcomes in children (see Maccoby & Martin).

In the 1960s, Baumrind introduced "the most important family typology" based on her research, about parenting styles (Mandara, 2003, p. 141). Baumrind (1966) defined three parenting styles and titled them authoritarian, authoritative, and permissive. Maccoby and Martin (1983) later differentiated between two types of permissive parenting. However, for methodological reasons, only the original three parenting styles introduced by Baumrind will be considered. Baumrind was the first researcher to truly classify styles of parenting and her work continues to influence researchers today (Brenner & Fox, 1999).

Authoritarian style. One style proposed by Baumrind is an authoritarian style (1966). Parents using this style are interested in obedience by the child. Demands by the child are usually not responded to by the parent (Brenner & Fox, 1999). Children are expected to accept regulations and rules set down by parents without question and with

complete obedience, even if the rule is not understood (Mandara, 2003). It has been found that in many of these homes there is a strong theological basis for the set standard of acceptable behavior (Baumrind, 1989). Authoritarian parents are considered to be low in responsiveness and high on factors such as demandingness (Aunola et al., 2000; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Mandara). Authoritarian parents may love their children and have their best interests at heart, but, they tend to show this through stern and consistent discipline and the limiting of independence and autonomy by enforcing household standards (Baumrind, 1966).

The outcomes typical of children from authoritarian homes have been widely studied. Although there are some mixed results, in general, children experience fewer positive outcomes than their peers when they hail from authoritarian homes. For example, Aunola et al. (2000) suggest that this parenting style may actually detract the child from learning due to discouragement of developing problem solving strategies and independent exploration and encouraging dependence on adults. These behaviors can, in turn, lead to a child not having an interest in school.

Outcomes, however, are not limited to the school environment. Baumrind (1989) found the children from authoritarian homes to be less trustful, less outgoing, and less content than the children from authoritative homes but more than the children from permissive homes. Chipman, Olsen, Klein, Hart, and Robinson (2000), while reviewing studies on parenting style outcomes, describe children from authoritarian homes as being more behaviorally aggressive, having a higher prevalence of both internalizing and externalizing disorders, having emotional functioning that is more diminished, and having a higher likelihood of later delinquency than children of permissive or

authoritative parents. Though they may function adequately in school, adolescents from authoritarian homes do suffer from lower self-confidence than adolescents from authoritative homes (Lamborn, Mounts, Steinberg, & Dornbusch, 1991).

Permissive style. Permissive style is a second parenting style defined by Baumrind (1966). A permissive parent sets few, if any, household rules and responsibilities for the child (Baumrind, 1966). Manipulation and reason are the main disciplinary tools utilized as opposed to direct and powerful alternatives (Baumrind, 1966). Some have even labeled the permissive parenting style as a type of pampering (Gfoerer, Kern, & Curlette, 2004). Parents using this style tend not to set the appropriate boundaries that children need to develop self-regulation, irrespective of the child's age or gender (Brenner & Fox, 1999; Glasgow et al., 1997). Children of permissive parents can sometimes interpret their parents' non-action as signals that their behavior is acceptable and, thus, are less likely to learn the limits of acceptable behavior through their home lives (Baumrind, 1966). These parents rate low on both demandingness and responsiveness factors (Mandara, 2003).

Children from permissive homes, much like children from authoritarian homes, are typically found to experience fewer positive outcomes than children of authoritative homes. Children from permissive homes sometimes do not acquire the skills for self-regulation and can become impulsive which can lead to underachievement in a scholastic setting (Aunola et al., 2000). These children were found to be the lowest, compared to all other children studied, in exploring behavior, self-reliance, and self-control (Baumrind, 1989). Chipman et al. (2000) found that children from permissive homes, like those from authoritarian homes, had a higher prevalence of future delinquent behavior and

aggression. This similarity occurs for different reasons, however. Children who are poorly supervised and neglected may turn to peer groups (where they feel accepted) that subscribe to drug and alcohol use and encourage misconduct scholastically and socially.

Authoritative style. A third parenting style labeled by Baumrind is the authoritative style (1966). Parents using this style are more interested in a give-and-take parent-child relationship, as opposed to unquestioned obedience (Baumrind, 1966). Parents will explain the reasoning behind household rules and responsibilities and will be willing to hear and consider the child's opinion (Baumrind, 1966). Authoritative parents are theoretically able to teach their children how to make responsible choices and, at times, receive negative consequences within a context where the child feels loved and protected, thus, learning from his or her mistakes (Baumrind, 1966). Rules are still set and enforced and the parents are able to take on the role of disciplinarian when necessary, but the parent is still responsive to the child's needs and flexible to the situations presented (Brenner & Fox, 1999). Parents who subscribe to an authoritative style remain high on the demandingness factor but also are high on the responsiveness factor (Aunola et al., 2000; Mandara, 2003).

Typical outcomes of children who come from an authoritative home are usually positive. For example, most of these children are well adjusted at school and achieve high performance levels, are strongly engaged, and have positive attitudes toward school (Aunola et al., 2000). In Baumrind's (1989) studies, the children from authoritative homes, as compared to children from authoritarian and permissive homes, were the most explorative, self-sufficient, and self-controlled. The preschool children from her studies were usually more competent when they came from authoritative rather than the other

two types of homes. This trend continued throughout middle childhood and was true for both boys and girls (Baumrind, 1989). Children from authoritative homes were less behaviorally aggressive, had better problem solving skills, had higher academic performance, better peer relations, and were less deviant than children from authoritarian or permissive homes, and these positive outcomes tend to hold regardless of gender or age (Chipman et al., 2000; Steinberg, Lamborn, Dornbusch, & Darling, 1992).

Food Related Parenting Behavior and Child Overweight

A parent is a child's role model (Omar et al., 2001; Kremers et al., 2003). It is from parents that children learn much about how to interpret and interact with their world. Children learn how to interpret and interact through their parents' teaching, even if the teaching is informal and unintentional (Wood, 1998).

Eating and eating habits fall into the realm of important behaviors that parents model and teach their children (Christoffel & Forsyth, 1989; Omar et al., 2001). Parents hold their own beliefs about food and nutrition and they bring their own background of nutritional education and practice (Baughcum et al., 1998; Gable & Lutz, 2000). Parenting practice (representing the behavioral implementation of parenting style) can be observed during mealtime. As summarized by Birch et al., 2001, "parents' feeding attitudes and practices shape what foods the child is offered, exert control over the timing, size, and social context of meals and snacks, and set the emotional tone of eating occasions" (p. 202). After a child is about 3-years-old, eating begins to strongly be influenced by environment (Patrick et al., 2005). This area has been studied throughout the nutrition literature. Parental feeding practice has been described using Baumrind's parenting styles. For example, Birch and Fisher (1995) identified these feeding practices

as authoritarian, authoritative, and permissive. It should be noted that, although these labels are the same as Baumrind's, they have not statistically been proven to be related. This paper solely focuses on the global parenting styles proposed by Baumrind. However, the parent feeding practices are reviewed to give a better understanding of the experiences that children may have during feeding.

Authoritarian feeding practice includes parental control of type and portion of food, which has been shown to have a positive association with child overweight (Gable & Lutz, 2000; Kremers et al., 2003; Patrick et al., 2005). Alternatively, parents may adopt an authoritarian feeding style to either prevent or remedy overweight in their children (Kremers et al.). In fact, restricting foods may actually increase a child's intake of that food (Kremers et al.). Also, when parental restriction is high, it can affect the child's perceived physical ability and perceived cognitive ability in already overweight children as compared to their non-overweight peers (Davison & Birch, 2001).

The permissive feeding style is characterized by little control. A child's food choices are only limited by current food availability in the home (Fisher & Birch, 1999). Children from homes where the parents use a more permissive feeding-style have been reported to have a diet in the lowest 10% of nutritional quality (Nicklas et al., 2001). In Kremers et al.'s (2003) review of several studies looking at permissive feeding style, the adolescents with parents who had a permissive feeding style ate more high fat foods, more sweet foods, and more snacks than adolescents from authoritarian and authoritative feeding style homes.

Authoritative feeding tends to be a balance between parental encouragement of consumption of healthy foods and child preference (Birch & Fisher, 1995). In multiple

studies, adolescents from homes with an authoritative feeding style had higher scores on attitudes toward eating fruit and had more perceived social support for eating fruit than adolescents from authoritarian or permissive homes (Kremers et al., 2003; Patrick et al., 2005). This is not to say that parents utilizing an authoritative style do not use parental control. The difference is that the parental control is implemented in an atmosphere of warmth (Kremers et al.), at least as exhibited at the table.

Parenting Style and Child Overweight

Although it is critical to know and understand the context surrounding food consumption in the home, there is more to the relation between parenting style and child overweight than mealtime experiences. As previously discussed, specific parenting styles have been shown to have a relation with socioemotional outcomes in children (e.g., Baumrind, 1989; Chipman et al., 2000; Lamborn et al., 1991). These outcomes could, in turn, lead to behavior in children that is conducive to overweight status.

A child may respond to an overcontrolling or undercontrolling parenting style with overeating or eating restricted foods as a stress response (Rhee et al., 2006). Research has shown that, in treatment programs to elicit child weight loss, the most effective programs not only educate parents about nutrition, but include areas such as educating parents in behavior techniques and problem solving skills (Epstein, McKensie, Valoski, Klein, & Wing, 1994). Amato and Fowler (2002) state that certain parenting practices, such as support, monitoring, and avoidance of harsh punishment have been related to positive outcomes in children of all ages (e.g., better mental health, better social competence, and positive self-concept). Children who receive the opposite behavior from parents, then, can display the opposite outcomes (e.g., worse mental health, worse

social competence, and negative self-concept). These children may also turn to food as a stress response. Further, as a result of less social competence and poor self-concept, they may be less willing to participate in group activities, such as organized sports or physical group activities on the playground.

Children from authoritarian homes have been found to have higher levels of depression than children from authoritative or permissive homes. Depression and overweight have also been linked in the literature. It could follow, then, that children from an authoritarian home become depressed and self-medicate with "comfort foods," defined as foods high in fat and high in carbohydrates (Dallman et al., 2003). Eating these types of foods can then lead to overweight.

The relation between permissive parents and child overweight is twofold. As previously noted, literature has now split this group into indulgent and neglectful (e.g., Maccoby & Martin, 1983). Understandably, the outcomes from these two different types of permissive parenting could be quite different. For example, indulgent parents may have more of a tendency to let their children eat whatever they please and whatever amount they please, which would have an effect on child overweight. On the other hand, children of a neglectful parent may have feelings of inadequacy and unimportance, which could lead to depression and lower self-esteem, which have both been related to overweight in the literature (Amato & Fowler, 2002; Morrill & Leach, 1991). Thus, the two types of permissive parenting can each lead to overweight in their own respective ways.

This suggests that there may be some relation between the variables of parenting style and child overweight status. There is not enough literature to predict the direction

of effect, but it is not unreasonable to assume that this relation exists. Parenting, however, does not occur in a vacuum. Environmental factors such as SES and the cultural aspects of ethnicity can influence parenting style.

Parenting Style and Socioeconomic Status

It may be the case that the outcomes associated with parenting style might not be universal (Dearing, 2004). The parenting styles that numerous studies have found to put children at risk for negative outcomes may actually be a barrier against negative outcomes when environmental factors, such as SES and neighborhood, are taken into account. "At risk" may, in fact, be "resiliency" in these cases (Dearing). Where affluence is found to be positively related to child achievement, poverty usually has the opposite relation (Dearing). The typical behavior of authoritative parents to let their child experience consequences in a non-threatening environment could, understandably, not be as easily carried out in a neighborhood where the consequences could be life-threatening. Therefore, it makes sense that behaviors typical of the authoritarian parenting style have been linked with mothers in a lower SES (Brenner & Fox, 1999; Dearing). Parents may feel that utilizing this parenting style will act as a buffer for their children to the negative outcomes associated with children living in impoverished areas. However, these same strategies, when employed in a more affluent neighborhood, may be disastrous for a child, regardless of ethnicity (Dearing).

Aside from parenting style being a buffer, some research has shown that lower SES can affect parents' self-efficacy. According to Ispa et al. (2004), mothers with a lower SES can have lower self-efficacy, which in turn, affects their belief that their parenting influences their child's development. On the other hand, being employed tends

to raise a mother's self-efficacy. Based on this literature, it is expected in this study that SES will have a moderating effect on the relation between parenting style and child overweight. Specifically, it is proposed that the relation between an authoritative parenting style and lower risk of overweight in children will be stronger in a high SES environment than in a low SES environment.

Parenting Style and Ethnicity

Literature shows that there are different patterns of parenting styles within the context of ethnicity. For the authoritarian parenting style, several studies have found that African-American and Hispanic families were more likely than European American families to be authoritarian and less likely to be authoritative (Dornbusch et al., 1987; Ispa et al., 2004). Even when the families of different ethnicities subscribe to the authoritarian parenting styles, it may look different within the context of ethnicity. Mandara (2003) found many negative implications of the authoritarian parenting style for European American children, among them dependence and depression. Baumrind (1972) found that African-American and European American children had different outcomes when their parents used an authoritarian parenting style. The African-American girls in the study were significantly more independent and somewhat more dominant than the European American girls. These are not consistent with the aforementioned typical outcomes associated with children from authoritarian homes. Furthermore, Baumrind (1972) found that there were some striking differences in the behavior of the African-American parents versus the European American parents within the context of the authoritarian parenting style. The African-American parents were much more likely than their European American counterparts to express emotion, even if it was spontaneous,

and they were much less "uptight." It may be that the daughters in the African-American families, therefore, did not interpret their parents as rejecting, but rather, as helping them to develop self-sufficiency in the context of nurturant care taking. One explanation for these differences in utilization of parenting style is the parents' perceptions. African-American and Latino American parents may feel that employing a more authoritarian style of parenting is one way of showing concern and being an effective parent (Dearing, 2004). According to Deater-Deckard, Dodge, Bates, & Pettit (1996), although African-American children were more likely to have received physical punishment in kindergarten, European American children who received high levels of physical punishment displayed more evidence of aggression and externalizing behaviors. The authors propose that one of the main reasons for this difference was the child's perception of their parents' parenting. They speculate that African-American children in this study may not view their parents as having less warmth or concern for their children, even when they utilized high physical punishment.

European American families are more likely than both African-American and Hispanic families to be authoritative. Ispa et al. (2004) found that European American mothers showed more warmth than both African-American and Mexican American mothers. Again, as in the authoritarian parenting style, the outcomes associated with authoritative parenting may be different within the context of ethnicity. For example, even though parental involvement and parental encouragement were found to be predictors of school performance and engagement in European American adolescents, the same was not true for their African-American counterparts (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994).

The research on parenting style and Native American families is sparse. The literature that is available (e.g., Jones et al., 2001) suggests that Native American parents tend to be more permissive. Although the amount of research is limited, it is consistent with this finding. Native American parents tend to see their children as individuals who are autonomous and capable of making their own decisions (Jones et al., 2001).

Based on the literature of parenting style and ethnicity, it is expected in this study that ethnicity will have a moderating effect on the relation between parenting style and child overweight. Specifically, it is proposed that the relation between an authoritarian parenting style and child overweight will be weaker for African-American and Hispanic families than for European American families. It is also proposed that the relation between a permissive parenting style and child overweight will be weaker for Native American families.

Summary

Linking all of these variables, an interesting picture starts to be drawn. Each pair of variables is related. Whereas empirical studies show a link between SES and overweight, and SES and parenting style, and a small group of studies link parenting style to overweight, the multivariate relations among SES, overweight, and parenting style have not been examined. Similar to the case with SES, ethnicity has been empirically linked with both overweight and parenting style, but the three variables have not been studied together. By using literature currently available, links can start to be made among all of the variables. These potential links provide the basis for the current study. Therefore, this study will examine the associations among parenting style, SES, ethnicity, and child overweight.

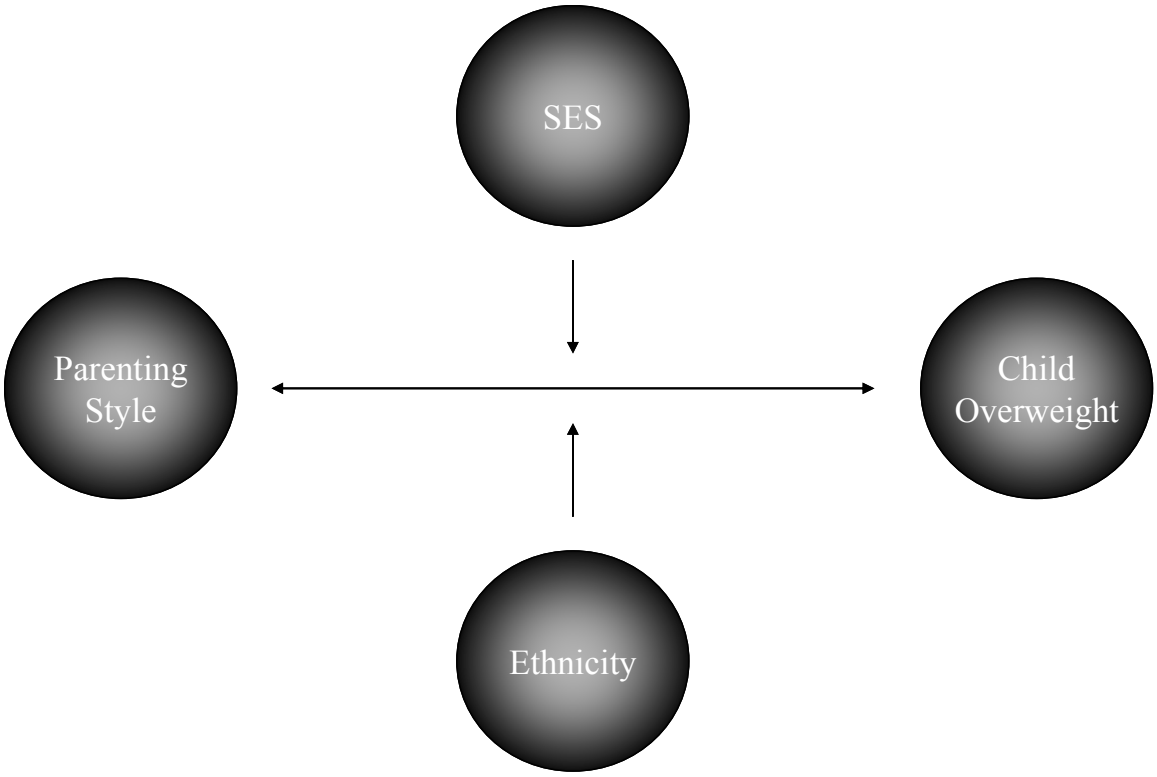

Figure 1. Moderation model of study.

Hypotheses

Hypothesis 1. There will be a relation between parenting style and child overweight. Specifically, children whose mothers are categorized as authoritative will have a lower likelihood of being overweight (defined as being in the 95th or above percentile of Body Mass Index [BMI-for-age]) or at-risk for overweight (defined as being in the 85th percentile or above of BMI-for-age) than children from either authoritarian or permissive homes.

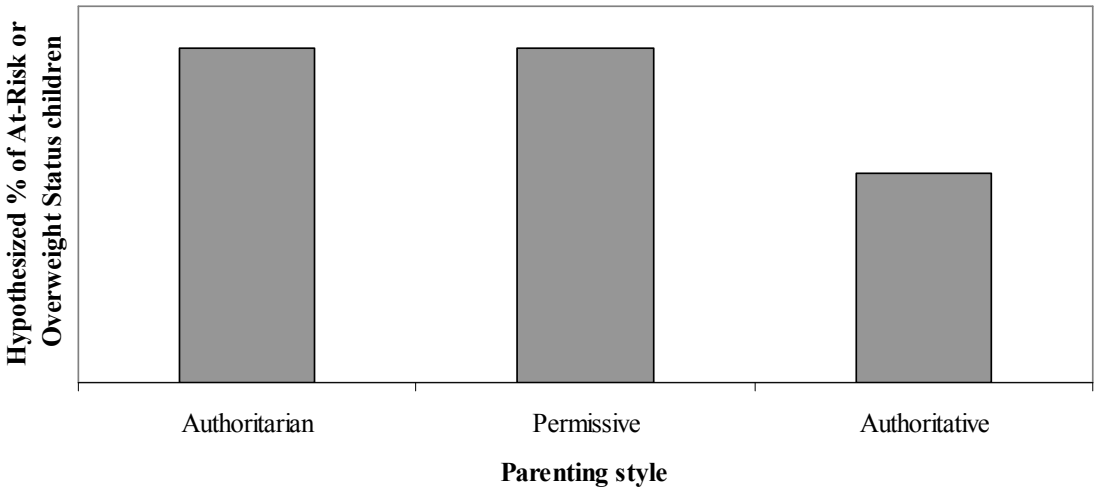

Figure 2. Hypothesis 1

Hypothesis 2. The relation between parenting style and child overweight will be moderated by socioeconomic status. Specifically, the odds that children whose mothers are categorized as authoritarian or permissive will have a higher likelihood of being of Overweight Status or At-Risk or Overweight Status than children whose mothers are categorized as authoritative will increase in a low SES environment.

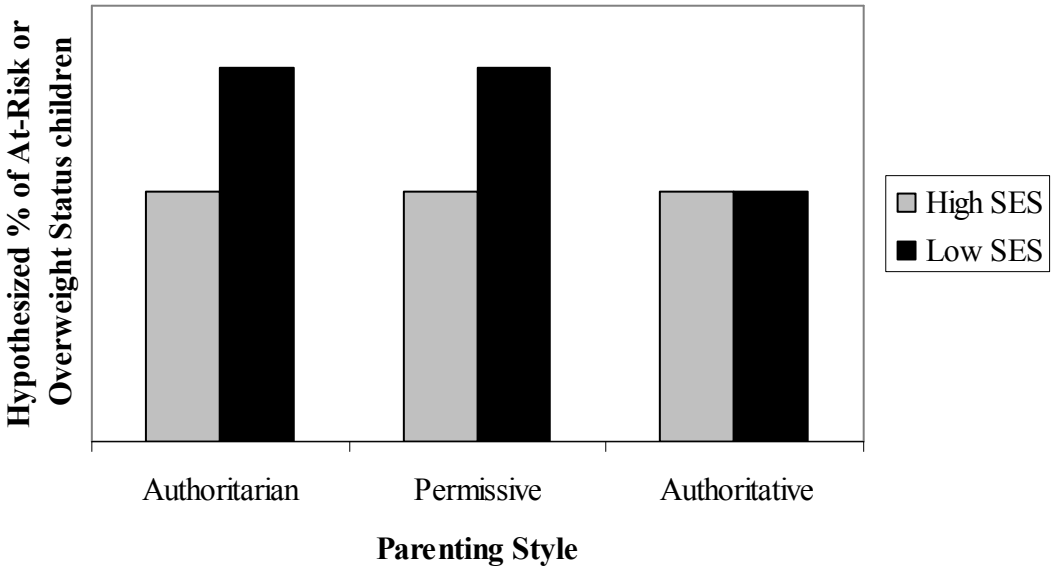

Figure 3. Hypothesis 2

Hypothesis 3. The relation between parenting style and child overweight will be moderated by ethnicity. Specifically:

a. The odds that children whose mothers are categorized as authoritarian will have a higher likelihood of child overweight will be lower for African-American families than European American families.

b. The odds that children whose mothers are categorized as authoritarian will have a higher likelihood of child overweight will be lower for Hispanic families than European American families.

c. The odds that children whose mothers are categorized as permissive will have a higher likelihood of child overweight will be lower for Native American families than European American families.

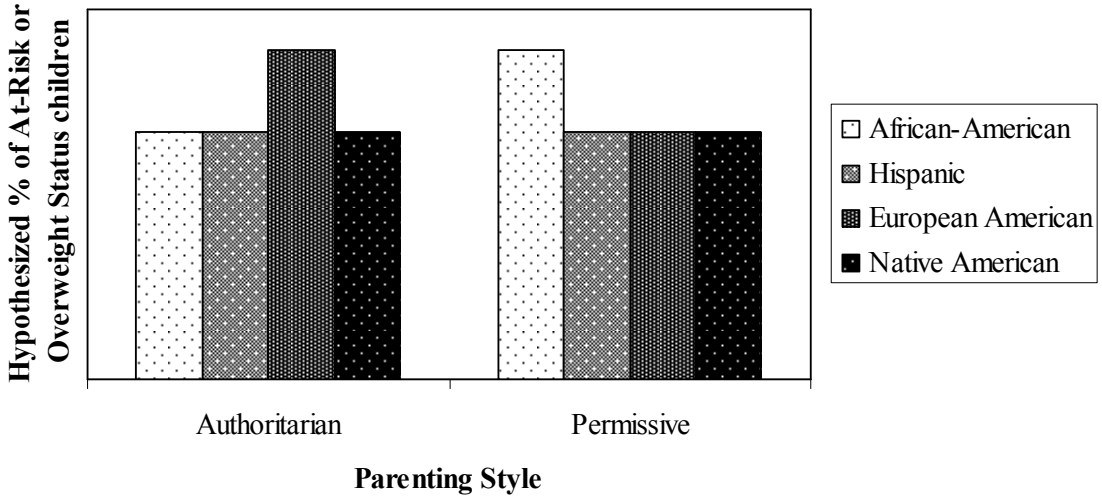

Figure 4. Hypothesis 3.

CHAPTER III

METHODOLOGY

Sample

The sample used in this study consisted of a subsample of the participants in the U.S. Department of Agriculture grant-funded Families and Schools for Health Project (FiSH; Harrist, Kennedy, Topham, Hubbs-Tait, & Page, 2005). FiSH is a project designed to develop useful interventions for both decreasing rate of weight gain and improving psychosocial functioning in children. Participants were recruited from rural Oklahoma elementary schools. Stratified random sampling techniques were used to assign schools to one of five groups, ranging from the control group to the group receiving all three interventions (Family Food and Lifestyle plus Family Dynamics plus Peer Group). The schools were stratified on two levels. In the first level, they were grouped by town size. In the second level, they were grouped by percent Native American. Then, the schools were randomly assigned to experimental condition by a computer generated random number table and computer generated coin flips. It should be noted that the current study is not examining experimental data effects. It is only exploring pre-intervention data and, therefore, will not go into detail about the interventions. After consent was obtained from the school personnel, parents and children were recruited to participate. Representatives from the project met with parents

at back-to-school nights and other events at the schools. Parents also were contacted through participating classrooms by sending letters home with the children.

Participants

FiSH participants. There are 607 total child participants in the first cohort of the FiSH project. All of the children were enrolled in the first grade at one of the participating schools at the time the data were collected. The ages of the children at the time of the pre-intervention weighing and measuring were between 6 and 8 years old, with a mean age of 7.04 (*SD* = .43). For the 581 child participants for whom ethnicity was available, the distribution was: 73.8% European American, 2.6% African-American, 2.6 % Hispanic, and 17.6% Native American. There was some demographic information available for 194 parents, 14 male and 180 female. The ethnicity distribution of 192 of the biological mothers was: 78.6% European American, .5% African-American, 1% Hispanic, and 14.6% Native American. The ethnicity distribution of 191 of the biological fathers was: 84.8% European American, 2.1% African-American, .5% Hispanic, and 11% Native American. For the 191 parents who filled out a demographic questionnaire, the mean income was $2000-$2499/month before taxes. A subsample consisting of 240 parent-child pairs was used in this study. It consisted of pairs for whom parent and child demographic information, child anthropometric data, and parent questionnaires were available.

Children. There were 240 total children in this subsample, 135 male (56.3%) and 105 female (43.8%). The mean age was 6.85 years old (*SD* = .39). The distribution of ethnicity was: 77.1% European American, 2.1% African-American, 1.3% Hispanic, and 16.3% Native American. For this portion of the FiSH sample, 29 (12.10%) fit the

definition of *Overweight Status* and 56 (23.30%) fit the definition for *At-Risk or Overweight Status*.

Parents. Parent demographic information for this subsample of parents came from two sources: demographic questionnaires and parent questionnaires. However, there was still some demographic information unavailable. Mean age of the mothers was 34.84-years-old (n = 203, SD = 6.91). Sixty-four percent of mothers described themselves as European American, followed by .4% African-American, .8% Hispanic, and 12.1% Native American (n = 199). The median household income was the $2000-$2499/month before taxes group.

Table 1

Discrepancies in demographic numbers

FiSH participants	*n*	Current Study	*n*
Total Children	607	Total Children	240
Child Age	607	Child Age	240
Child Ethnicity[a]	581	Child Ethnicity[a]	238
Parent demographic forms	194	Total Mothers	240
Ethnicity Biological Mother[c]	192	Mother Age[f]	203
Ethnicity Biological Father[d]	191	Mother Ethnicity[c]	192
Income Mother[e]	193	Mother Income[e]	193

[a] Child Ethnicity was not given by parents and not available from the school
[b] Not all parents filled out demographic forms
[c] Not given for 2 mothers either by the mother or the father
[d] Not given for 3 fathers either by the mother or the father
[e] Not given for 1 mother either by the mother or the father
[f] Not on demographic form or parent questionnaire packet for 37 mothers

Procedure

Children's anthropometric assessments were completed at all schools during the first four months of the child's first grade year. Children's weight was determined by using a digital scale. Height was measured with a wooden height board. Reliability was established for all of the research assistants weighing and measuring the children by measuring the same child and obtaining a height within a specified range of each other. Bioelectric impedance was also assessed but these data will not be analyzed in the current project. The child's Body Mass Index for age (BMI-for-age) was calculated from these measures. BMI for children is often referred to as BMI-for-age since there are different charts for children's BMI that take into account gender and age, unlike the charts for BMI of adults (Center for Disease Control and Prevention [CDC], 2006a).

Parents were either mailed a packet of questionnaires or given the packet at the family group interventions. They were modestly financially compensated for completion of the packets. The parenting style of the parents was determined based on items from the Parenting Practices Questionnaire (PPQ), which was included in the larger packet of questionnaires (Robinson, Mandleco, Olsen, & Hart, 2001). Family socioeconomic status and ethnicity information was obtained in a demographic questionnaire received in the initial recruitment phase by way of forms filled out by the parents. Some demographic information for the children was obtained from school records, such as ethnicity and birth date.

Measures

Child overweight. BMI-for-age for the child participants was calculated using the height, weight, and age of the children. BMI-for-age measures height/weight ratio, using the formula, [weight (lb) / [height (in)]^2 x 703] (CDC, 2006a). The BMI-for-age that is

obtained falls onto a chart with specified percentages. BMI-for-age was calculated using the Epi Info program. Epi Info is a program, provided by the CDC, which allows a researcher to make and analyze a database. From the Epi Info main screen, 'Nutrition' can be selected and a new file created. In order to calculate BMI-for-age, the child's gender, date of measurement, birthdate, height, and weight are entered. After entering this information, the BMI-for-age is calculated (CDC, 2006b). A healthy weight is considered to be between 5% and 85% on the BMI-for-age chart. An at-risk weight is defined as 85% and above. Overweight is defined as 95% and above. These percentages are used to define *At-Risk or Overweight Status* and *Overweight Status,* respectively, in this study.

SES. SES was categorized based on demographic information received from the parents using the four-factor Hollingshead scores (Hollingshead, 1976). The SES score was based on education and occupational status of the parents. Education for the mother (and father, if given) was coded into 1 of 7 categories based on the Hollingshead manual (e.g., category 1 is less than seventh grade). Occupation was also coded according to the Hollingshead manual into categories ranging from 1 to 9 (e.g., category 9 is higher executives, proprietors of large businesses, and major professionals). The occupational score is weighted by five and the educational score is weighted by three. The results of these computations are then added together. Scores fall on a range between 8 and 66. These scores fall into defined social strata (e.g., 55-66 is considered major business and professional). For mothers who also listed occupation and education for a spouse, these scores were computed for both parents and then averaged. The annual income information used in the discussion was obtained from the demographic questionnaires filled out by the parents.

Ethnicity. Ethnicity was determined by parent report on a demographic questionnaire or, in some cases, school records for the children. The analyses regarding ethnicity in this study were specific to European American and Native American unless otherwise specified. In few of the analyses, the researcher examined African-American ethnicity but most did not due to the small sample size. Hispanic ethnicity was not able to be studied within this subsample at all due to the small sample size. The child ethnicity was used in Hypothesis 3 because ethnicity was available for all child participants and not available for all parent participants.

Parenting Practice Questionnaire (PPQ). The PPQ is an instrument designed to assess parenting style by parent self-report (Robinson, Mandleco, Olsen, & Hart, 1995). A modified version of this questionnaire is used in this study (see Appendix A; Robinson et al., 2001). The original PPQ (Robinson et al., 1995) had 62 questions total using a ranking scale with five points ranging from always (5) to never (1). Based on their findings, the creators determined that the scale can effectively be used with school-age children. Since its creation, a modification of the PPQ has been made that is a 32-item scale (C.H. Hart and C.C. Robinson, personal communication, September 19, 2006). This modified version was used for this study. The items on the scale can be divided into three sections: Authoritarian Items, Authoritative Items, and Permissive Items (Robinson et al., 1995). Psychometric statistics for the modified version of the PPQ were calculated using the sample from this study. The Authoritarian Items had a Cronbach's α of .76. The Authoritative Items had a Cronbach's α of .81. The Permissive Items had a Cronbach's α of .75.

Parenting style. Parenting style consisted of three categories: authoritarian, permissive, authoritative. In order to assess the parenting style categories, the items from

the PPQ associated with each style were summed and then the mean was calculated. This calculation produced a score ranging from 1 (low) to 5 (high) for each parenting style. This score is the parent's specific parenting style score. For example, the items for authoritative parenting style were summed and averaged. This produced a score ranging from 1 to 5. The result is the parent's authoritative parenting style score. If a mother were to score 4, she would have scored high on the authoritative scale. Following the creation of the three parenting style variables, the Cronbach's alphas were calculated to assess the reliability of each scale as well as inter-scale reliability. Next, a median split was done to classify each parent as high or low for each parenting style category. In the current study, a parent is defined as being high in the *Authoritarian Parenting Style* who falls above the mean on the PPQ subscale items that assess authoritarianism (e.g., "I use physical punishment as a way of disciplining our child"). A parent is defined as high in the *Permissive Parenting Style* who falls above the mean on the PPQ subscale items that assess permissiveness (e.g., "I find it difficult to discipline our child"). A parent is defined as high in the *Authoritative Parenting Style* who falls above the mean on the PPQ subscale items that assess authoritativeness (e.g., "I am responsive to our child's feelings and needs").

Data Analysis

Before explaining the statistical techniques utilized in this study, the operationalization of some of the variables must be explained. For the *Parenting Style* and *Weight Status* variables, it can methodologically be argued for these variables to be either continuous or categorical. Defining *Weight Status*, for example, as a categorical variable requires putting participants in "high" overweight or "low" overweight groups. What is low overweight? Is there a difference between children at the 80th percentile as

opposed to the 50th percentile? However, when using weight as a continuous variable, other issues come up as well. For instance, this variable would assume a continuum from high weight to no weight. Obviously, there cannot be a person with no weight. Further, this variable would bring into account children at the very low end of weight, which is another risk factor for children, separate from overweight issues. Many of the same arguments can be given for the *Parenting Style* variables. When categorizing these variables and having high permissive and low permissive, the question becomes, what is low permissive? Is it high authoritative or high authoritarian, or neither? However, *Parenting Style* on a continuous scale is also accompanied with methodological questions. For example, with the PPQ, parents obtain a score on all three parenting style factors and, therefore, could score on the high end of all three factors. Thus, for the purposes of this study, both of these variables were examined as both categorical and continuous.

For the preliminary analyses, Chi-Square analyses were used to examine the relation between the categorical *Ethnicity* and *Weight* and *Ethnicity* and *Parenting Style* variables. One-factor between subjects ANOVAs were also used in the analyses of the *Ethnicity* and *Parenting Style* variables. *T-tests* and one-factor between subjects ANOVAs were used to analyze within ethnicity group differences among the *SES* and *Weight* variables.

To examine differences in *Parenting Style* as a function of *Child Weight Status* (i.e., hypothesis 1), Chi-Square analyses were run for the categorically defined variables. To analyze these variables continuously, *t-tests* were run.

Logistic regression equations were computed to examine the proposed moderation (dependent variable = overweight status yes/no and independent variables of *Parenting*

Style, *SES*, and interaction of *Parenting Style* X *SES* for hypothesis 2 and *Parenting Style*, *Ethnicity*, and interaction of *Parenting Style* X *Ethnicity* for hypothesis 3).

CHAPTER IV

RESULTS

Preliminary Analyses

Within-Domain Correlations

Correlations among the independent variables are presented in Table 2. All of the parenting styles were significantly inter-correlated. The *Authoritative Parenting Style* was significantly, negatively correlated with both *Authoritarian Parenting Style* and *Permissive Parenting Style*. Further, the *Authoritarian Parenting Style* and *Permissive Parenting Style* were significantly and positively correlated.

Table 2

Correlations Among Parenting Styles

Parenting Style	1	2	3
1. Mother Authoritative	—	-0.35**	-0.13*
2. Mother Authoritarian		—	0.45**
3. Mother Permissive			—

*$p < .05$. **$p < .01$
$n = 240$

Demographic Differences

As previously mentioned, due to conceptual reasons, many of the variable comparisons were considered using both continuous and categorical *Weight* and *Parenting Style* variables. Conceptually, there is an argument to study both types of variables as continuous or categorical (please see Methods section for further discussion on this topic). For the purposes of clarity, all results will be reported in the same order: analyses with continuous variables followed by analyses with categorical variables.

Ethnicity and weight. Chi-Square analyses were run to examine relations among the *Ethnicity* and *Weight* variables. In all of the following analyses, African-American (*AA*) ethnicity and Hispanic ethnicity were not used due to the small sample size ($n = 1$ for mothers, $n = 5$ for children and $n = 2$ for mothers, $n = 3$ for children, respectively), unless otherwise specified. First, two Chi-Square analyses were run using *Mother Ethnicity* and the two weight status variables (*Overweight* and *At-Risk or Overweight*). There was one significant finding. Significantly more children of Native American (*NA*) mothers were of *Overweight Status* than children of European American (*EA*) mothers ($\chi^2 = 4.64$, $p < .03$, n(*NA OW*) = 6 of 23, n(*EA OW*) = 12 of 155). When using the child's ethnicity (instead of mother's), two Chi-Square analyses were run and no significant differences were found for any of the *Weight Status* groups and *Child Ethnicity* groups.

Ethnicity and parenting style. Three Chi-Square tests were run to examine the relation between *Child Ethnicity* (only *EA* and *NA*) and the categorical *Parenting Style* variables. There was a significant relation between *Authoritative Parenting Style* and *Child Ethnicity* ($\chi^2 = 4.64$, $p < .05$) and between *Permissive Parenting Style* and *Child Ethnicity* ($\chi^2 = 6.67$, $p < .01$). No significant relation was found between the

Authoritarian Parenting Style and *Child Ethnicity*.

Twelve Chi-Square analyses were run to test the within ethnic group differences using categorical *Parenting Style* and categorical *Weight* variables. There were no significant findings. Additionally, six *t*-tests (three for *NA*; three for *EA*) were run to examine within ethnic group differences using the categorical *Parenting Style* variable and continuous *BMI-for-age* variable. These results also produced no significant findings.

The researcher was not able to examine any ethnicity other than *EA* and *NA* due to the small sample size of the *AA* ethnicity group. In order to see if there were any differences among these three groups, three one-factor between subjects ANOVAs were used to compare these groups with the three categorical *Parenting Style* variables. The results from the *Authoritative Parenting Style* ANOVA could not be used due to a significant Levene statistic. The ANOVA between *Permissive Parenting Style* and *Child Ethnicity* was significant [$F(1, 226) = 3.58$, $p = .029$]. In order to assess between which ethnicity groups the differences occurred, a Tukey post-hoc analysis was performed. This analysis indicated a significant difference between the *NA* and *EA* ethnicity groups only ($p = .024$) with *NA* mothers being higher on the permissive scale than *EA* mothers. The ANOVA for the *Authoritarian Parenting Style* was not significant.

SES and Parenting Style. To examine possible *SES* differences, three *t*-tests were computed comparing the categorical *Parenting Style* variables using the continuous Hollingshead *SES* variable. No significant differences were found among these variables.

SES and Ethnicity. A one-factor between subjects ANOVA was used to examine possible differences in *SES* among the three *Child Ethnicity* groups using the continuous Hollingshead *SES* variable. No significant results were found.

Hypothesis 1: Differences in Parenting Style as a Function of Child Weight Status

It was first hypothesized that there would be a relation between parenting style and child overweight. First, these relations were examined using the continuous *Parenting Style* by computing *t*-tests, which were used to analyze the difference in mean *Parenting Style* of *Overweight Status* or *At-Risk or Overweight Status* of children versus *Non-Overweight* and *Non-At-Risk or Overweight Status* children. Six *t*-tests were computed, two per parenting style. Of the six tests, two were significant ($p < .05$) and one was marginally significant. There was a significant difference [$t(1,183) = 1.72$, $p < .05$] in *Permissive Parenting Style* between *Child At-Risk or Overweight Status* and *Child Non-At-Risk or Overweight Status* (*M*s = 2.29 and 2.10, respectively). In other words, mothers who were more permissive were more likely to have a child who was at-risk for overweight. There was a marginally significant difference [$t(1, 25.213) = -1.59$, $p < .06$] in *Authoritarian Parenting Style* between *Child Overweight Status* and *Child Non-Overweight Status* (*M*s = 1.68 and 1.81, respectively). Thus, the less authoritarian mothers were more likely to have a child with an *Overweight* versus *Non-Overweight Status*. Also for the *Authoritarian Parenting Style,* there was a significant difference [$t(1, 81.04) = -1.66$, $p < .05$] between *Child At-Risk or Overweight Status* and *Child Non-At-Risk or Overweight Status* (*M*s = 1.72 and 1.82, respectively). Children at-risk for overweight have less authoritarian mothers. There were no other significant differences in *Parenting Style* as a function of *Child Overweight Status* or *At-Risk or Overweight Status*.

Using both *Parenting Style* (high versus low) and *Weight* as categorical variables, six Chi-Square analyses were run. In other words, a Chi-Square calculation was performed for each parenting style with both *Child Overweight Status* and *Child At-Risk*

or Overweight Status. No significant results were obtained from these categorical analyses.

Hypothesis 2: Socioeconomic Status Moderation

After testing for the main weight differences in parenting style, logistic regression was used to examine the possible moderating effects of *SES* on the relation between *Parenting Style* and *Child Overweight Status* or *At-Risk or Overweight Status*. Six total regression equations were run for this part of the analyses. The *SES* and *Parenting Style* variables were all centered (i.e., converted to *Z*-scores) and used as continuous variables in these analyses. It should be noted that data used in these analyses consisted of parent-child pairs for whom *SES* information was available for the parents.

By considering *Parenting Style* and *SES* simultaneously, one significant moderating effect was found. The interaction of *Permissive Parenting Style* and *SES* was significant (exp B = 1.71, $p < .05$) and positive (see Figure 5 and Table 3) when comparing *Overweight Status* (1) to *Non-Overweight Status* (0) children. In order to interpret this finding, the slope was calculated and the regression line was graphed for three levels of permissive parenting: at one standard deviation below the mean, at the mean, and at one standard deviation above the mean for low, mean, and high permissiveness. Thus, nine data points resulted from these equations which were then plotted (Figure 5). The slopes of these lines were used to determine direction of effect. The effect of *Permissiveness* varies at different levels of *SES*. *Permissiveness* predicts higher levels of *Overweight* at high *SES* and slightly lower levels of *Overweight* at low *SES* and the difference in *Overweight* between these two levels is significant. The odds of having a child who is overweight varies from .05 to .12 for eight of the nine

combinations of *SES* and *Permissiveness* depicted in Figure 5. In sharp contrast, the odds of having a child who is *Overweight* for those high on both *SES* and *Permissiveness* is .24, which corresponds to a probability of .195 of having a child who is *Overweight*. If there were no interaction, the combination of being high on both *SES* and *Permissiveness* would result in an odds ratio of 1.50 of having a child who is *Overweight*, compared to parents who are average on both *SES* and *Permissiveness,* which is not a significant increase. To get these odds ratios, it is necessary to do the relevant calculation in the original log metric and then exponentiate the results. There were no other significant relations among *SES*, *Parenting Style*, and *Weight Status* when using the continuous *Parenting Style* variable. Table 4 gives the mean Hollingshead SES scores and mean annual income for the low SES (1 standard deviation below the mean), mean SES (between 1 standard deviation below and 1 standard deviation above the mean), and high SES (1 standard deviation above the mean) groups to aide interpretation.

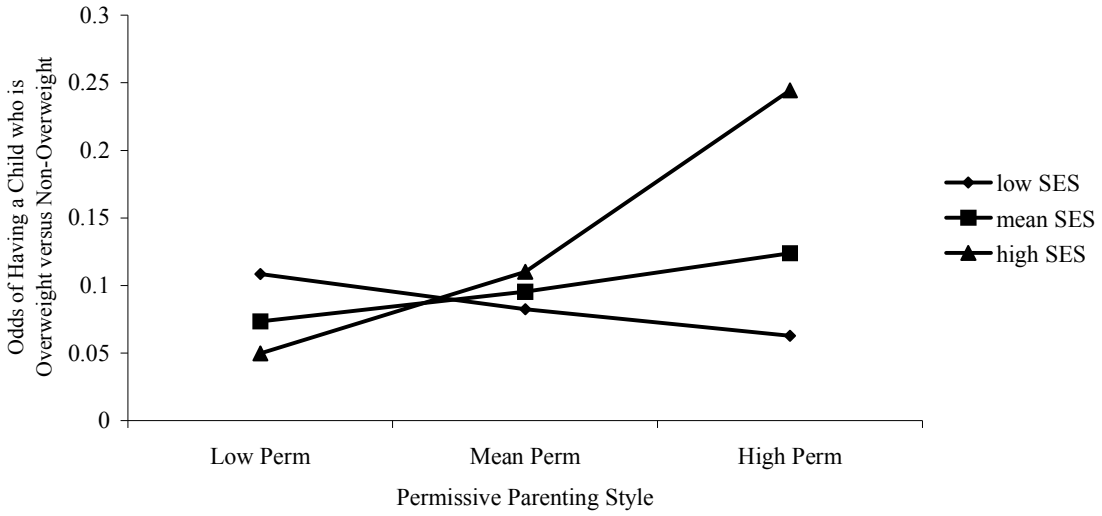

Figure 5. Moderating effect of SES on relation between permissive parenting style and child weight status.

Logit Analysis: Predicting Membership in Overweight Versus NonOverweight Group

Variable	B	SE	Odds Ratio (exp B)	Confidence Interval (95%)
Permissive Parenting	0.26	0.28	1.30	.75-2.26
SES	0.15	0.27	1.16	.68-1.97
Permissive Parenting x SES	0.53	0.27	1.71*	1.00-2.92
Authoritative Parenting	-0.58	0.37	0.56	.27-1.16
SES	0.18	0.28	1.19	.69-2.07
Authoritative Parenting x SES	0.36	0.35	1.43	.72-2.83
Authoritarian Parenting	0.47	0.26	1.05	.63-1.74
SES	0.09	0.26	1.09	.66-1.81
Authoritarian Parenting x SES	-0.24	0.25	0.79	.48-1.27

*$p < .05$
$n = 181$

Table 4

Annual income associated with low, mean, and high Hollingshead SES scores with current sample.

	Mean Hollingshead SES Score	Approximate Annual Income[1]
Low SES[2]	29.18	37,500
Mean SES[3]	38.98	55,500
High SES[4]	48.78	63,000

[1] Based on mother's self-report of own and spouse's monthly income before taxes

[2] Based on incomes from 1 *SD* below the mean Hollingshead SES score and below

[3] Based on incomes from 1 *SD* below the mean to 1 *SD* above the mean Hollingshead SES score

[4] Based on incomes from 1 *SD* above the mean Hollingshead SES score and above

The six logistic regression equations were re-run using the categorical parenting style variables (high versus low style). No significant interaction effects were found. However, there was a similar trend for the *Permissive Parenting Style* and *Child Overweight Status* ($\beta = 0.12$, $p < .09$) main effect, where children of permissive parents had a higher weight status, regardless of *SES*.

Hypothesis 3: Ethnicity Moderation

The second test of moderation considered the potential moderating effect of *Child Ethnicity* on the relation between *Parenting Style* and *Weight Status*. Logistic regression was utilized to examine these relations as well. Six regression equations were computed to examine the potential moderation using continuous *Parenting Style* variables. These equations were run only considering *EA* and *NA* ethnicities due to the low sample size of

the other ethnicity groups. Further, these analyses only included parent-child pairs for whom *Child Ethnicity* was available. Results of the regression analyses indicated no significant interaction effects between *Child Ethnicity*, *Parenting Style,* and *Child Weight*. The logistic regression analyses did show one trend for the main effect of *Child Ethnicity* when *Permissive Parenting Style* was controlled statistically. There was a marginally significant relation between *Child Ethnicity* (only considering *NA* and *EA*) and *Child At-Risk or Overweight Status*. Specifically, *NA* children have higher *At-Risk or Overweight Status* than their *EA* counterparts ($\beta = 1.37$, $p < .09$) in this sample.

Another way in which these data were analyzed was by categorizing the parenting style variables. Six logistic regression equations were computed (only considering *EA* and *NA* ethnicities) to examine associations between *Parenting Style* and *Child Weight* as a function of *Child Ethnicity*. There were no significant relations found.

Table 5

Significant and marginally significant results summary table.

1. Children of Native American mothers significantly more Overweight
2. Native American mothers more permissive than European American mothers
3. More permissive mother more likely to have a child who has At-Risk or Overweight Status
4. More authoritarian mothers less likely to have a child who is Overweight Status (marginal)
5. More authoritarian mothers less likely to have a child is At-Risk or Overweight Status
6. For high SES mothers, greater permissiveness was related to greater likelihood of overweight

CHAPTER V

DISCUSSION

The intent of this paper was to examine some of the environmental correlations of child overweight. An important aspect of children's environment is the parenting they receive (Glasgow et al., 1997). However, the parent-child relationship exists in a greater environmental and social context (Amato & Fowler, 2002). As a result, research broadening the factors looking at aspects of child overweight and the parent-child relationship should include factors within these contexts, such as ethnicity and socioeconomic status.

Preliminary analyses replicated ethnicity and overweight findings from previous studies. Namely, it was found that children of Native American mothers were significantly more overweight than children of European American mothers. This is a finding well-documented in the literature (e.g., Broussard et al., 1995; Crawford et al., 2001; Salbe et al., 2002; Story, Evans, Fabsitz, Clay, Holy Rock, & Broussard, 1999). Additionally, preliminary results indicated that, for this sample, Native American mothers were significantly more permissive than their European American counterparts. This finding replicates another finding on Native American parenting (Jones et al., 2001) and helps to extend the limited research available on this topic.

After the preliminary analyses, the hypothesis that was explored was the main effect of parenting style on child weight status, using the Parenting Practices

Questionnaire (Robinson et al., 2001) and BMI-for-age calculations in a rural sample. It was found that mothers utilizing a more *Permissive Parenting Style* were significantly more likely to have a child who was at-risk for overweight. This finding mirrors an earlier finding by Rhee et al. (2006) who also found that children of permissive mothers were more at-risk for overweight status.

Also, mothers employing a less *Authoritarian Parenting Style* were significantly more likely to have a child who was overweight (≤ 95% BMI-for-age). Similarly, there was a marginally significant relation among mothers that use this same style (authoritarian) and a child being at-risk for overweight (≤ 85% BMI-for-age). In other words, mothers using a less *Authoritarian Parenting Style* had a trend for having a child who was more at-risk for overweight. Interestingly, this finding contradicts an earlier finding by Rhee et al. This may be due to a different sample or rural versus non-rural factors. Although the basic behaviors for these authoritarian mothers from these various studies may be similar, the goals and values behind these behaviors may be different and, thus, could differentially affect the child outcomes. For example, an authoritarian, inner-city, African-American mother's goals may focus on the safety of her child in a dangerous neighborhood. Strictness and demand for conformity may be thought to be necessary for the survival of their child. An authoritarian, rural, European American mother's goals may differ due to a decreased day-to-day security risk. Their values may lean toward a more "traditional" and, perhaps religious, mentality of parent as the governing body, not to be questioned. Another parental factor that may play a role in this relation is that of parental depression. Parental depression has been linked in the literature with future child depression and utilizing a dysfunctional parenting style

(Horvath, Pineda, & Cole, 2004) and children's use of maladaptive strategies (Onatsu-Arvilommi, Nurmi, & Aunola, 1998). Parental depression could perhaps be another moderator of the parenting style and child weight relation. This potential link is outside of the realm of this paper and should be examined in future studies.

The data for the Rhee et al. (2006) paper come from the National Institute of Child Health and Human Development Study of Early Childcare (NICHD, 2007). The sample came from ten sites across the United States near college campuses. Over half of the sample was considered non-poor (by 1995 US Standards) and 33% had some college. In some ways the ethnicities of the Rhee et al. and the current studies were similar (76.4% and 77.1% European American, respectively). However, their sample had no listed Native American participants and this study's second highest ethnicity group was Native American (16.3%).

Another notable demographic differences is the location of the participants. The participants from the Rhee et al. study reside around several college campuses, including Chapel Hill, North Carolina; Madison Wisconsin; Pittsburgh, Pennsylvania; and Little Rock, Arkansas (NICHD, 2007). The participants in this study do live within driving distance of a college campus; however, the surrounding towns are rural. Rural families have been found to be somewhat different from their more urban counterparts. Children from rural communities, especially on a farm setting, gain deep attachments to their families and communities (Elder, King, & Conger, 1996). Their focus is more toward the family, and they, therefore, engage in more adult-like tasks and responsibilities. Whereas, the non-farm children are engaged in more peer-driven activities. Thus, both

studies are important in different ways to our overall understanding of child development in the context of varying environments.

The similar and contradictory results are much in line with other literature studying this complex relation. For example, Agras et al. (2004) and Lissau et al. (1994) found no significant relation between parenting style and child weight variables, whereas, Rhee et al. (2006), found some significant relations. One reason for this discrepancy proposed by Rhee et al. is a difference in operationalization of parenting style. This study utilized a self-report questionnaire, the Rhee et al. paper used observational techniques (coding only for maternal sensitivity) and self-report for maternal expectations, and other studies have used teacher-report questionnaires on parental support and child hygiene (Lissau et al.). The Agras et al. paper relied also on a self-report tool (The Parental Authority Questionnaire) to assess parenting style. Due to this vast discrepancy, it is somewhat difficult to compare the results of these studies. With each technique, there are potential barriers to uncovering the "true" parenting style. Observation fails to get at parental goals and values. Self-report is open to potential bias (e.g., parents wanting to give the "socially right" answer).

After studying the relation between parenting style and child weight status, the next step was to analyze the moderating effects of *Ethnicity* and *SES* on the relation between *Parenting Style* and *Child Weight Status*. Examination of the first moderator, *SES*, did result in one significant finding. Using logistic regression, it was determined that the interaction of the *Permissive Parenting Style* and *SES* was significant in predicting child overweight status. Mothers who were highly permissive and had a higher SES score, within this sample, were most likely to have a child who was

overweight (see Figure 5). In order to be in a higher SES in these rural communities, though, these mothers may be working, giving more opportunity for others to dictate what and how much their children eat or the children are making more of their own decisions about food. Then, when the children are with their mothers, and if the mothers utilize a permissive parenting style, the mothers may be more apt to let their children eat whatever they want instead of imposing restrictions on less healthy foods. The mothers may have a lack of energy due to work or lack of time due to work, which also could lead to "quicker" and less healthy food choices and eating out more.

However, it should be noted that high SES is relative. The FiSH project was designed to study families in rural Oklahoma. High SES in rural Oklahoma may not be high SES when considering the overall SES range in the United States. For this sample, the mean salary per month before taxes for the mothers was $2,250. This is approximately $55,500 per year (not including a spouse). According to the 2005 United States Census Report, the three-year average median income for Oklahoma was $38,895 (United States Census Bureau, 2007). For the Midwest in general, the three-year average median income was $45,950 and for the United States, $46,326. Therefore, this sample had a yearly income approximately $10,000 less than the median state income, which is itself approximately $7,000 less than the national median annual income. Additionally, Oklahoma's non-metropolitan (i.e., rural) regions have the highest unemployment rates in the states (Barta, Trzebiatowski, Doeksen, & Woods, 2001). Approximately one-fourth of earned income in the Northeast region of Oklahoma comes from "transfer payments" which is commonly thought of as welfare (Barta et al.). This may be due to the fact that from 1975-1996, there was a net decrease of 8.7% in farming jobs in the southern plains

region (and a net decrease of 26.9% for the US non-metro areas as a whole; Majchrowicz, 2000). Families who grew up in the tight-knit farming communities may not want to leave for reasons varying from familial roots to outright owning the farm. These families are then staying in areas where there may be fewer occupational choices and have to turn to low-wage jobs or welfare. Further, the mean Hollingshead score for this sample was 39 on a scale from 8 to 66. According to the Hollingshead manual (1976), this falls in the social strata labeled skilled craftsmen, clerical, sales workers. Although this sample may not fall in the overall high SES category of the United States, it does give an interesting perspective on the constituency of the high SES group in this area of the United States.

Child Ethnicity was also tested as a moderator. Although no significant moderating effects were found for child ethnicity, these analyses did reiterate the preliminary findings that, within this sample of children, Native American children have a higher likelihood of being overweight than European American children. These results corroborate previous studies on ethnicity and child weight.

The overall results of this study suggest that types of parenting style may, in fact, play a role in a child's weight status. There are aspects of parenting style (e.g., autonomy; Rothbaum & Trommsdorff, 2007) that may play a role in understanding the results of this study. In the authoritative style, autonomy socialization is linked with relatedness so that children are learning how to be autonomous within a warm environment and parents can guide them on what foods to eat while still taking the child's thoughts and feelings into consideration. In contrast, authoritarian parents might demand their children eat what they say without taking the children into consideration

(low autonomy) and, thus, the children do not learn how to "listen" to their own body cues. Moreover, these parents may use food as a bargaining tool for immediate compliance or to discontinue unwanted behavior (e.g., fussiness or whining), which further exacerbates the child's ability to read their own body cues. This could prove especially problematic for children with a genetic predisposition for overweight (Baughcum et al., 1998). Children from a permissive home where there is high autonomy and low relatedness might be able to make more food choices but with less guidance.

Beyond these parenting behaviors, however, is the environment of the household within the context of the parenting style. Children in the environment of an authoritarian or permissive parent may use food as a stress-coping mechanism. Both situations may be stressful for the child—the first for intrusiveness and the second for neglect.

As mentioned earlier, there are several negative outcomes typically related to permissive parenting (Aunola et al., 2000). These outcomes are particularly salient to this study because of the interaction effect found for permissiveness and SES. If these higher SES mothers are indeed working more, these children, speculatively, could feel a sense of neglect or abandonment from their mothers, which could lead to lower self-worth and self-esteem. Overeating or binge eating by the child to try to soothe these negative feelings could then lead to overweight. This is not to say that all children whose mothers work feel a sense of abandonment. However, a child who is already overweight may have fewer friends and other social outlets and already be spending more time at home. The absence of a parent (even if it is understood why the parent is gone) could intensify the child's negative feelings that are felt due to already being overweight.

Having a higher income in the house may increase the availability of non-nutritious foods in the house from the child's request as a parent's attempt to "make-up" for not being there in person.

Although not specifically examined, the current study can expand the understanding of the relation between global parenting styles and parent feeding styles. Past literature has shown a relation between permissive feeding style and a child's increased consumption of high fat and high sweet foods. The current study found that permissive parents were significantly more likely to have a child who was at-risk for overweight. Therefore, it could be concluded that the concepts of global parenting style and parent feeding style are related. Literature has also shown a relation between authoritarian feeding style and child overweight and this study's results conflict with this literature. However, the literature on authoritarian feeding styles is somewhat conflicting. For example, Birch et al. (2001) found that even though increased pressure to eat healthy foods decreased children's desire to eat these foods, their actual intake of these foods was increased.

Beyond two years old, children are more influenced by their sense of autonomy and their internal control systems (Edwards & Liu, 2002). Due to this, they may or may not have willing compliance toward their parents. Theoretically, children's willing compliance may be associated with their parents' parenting style. Their willingness to comply and their readiness to be socialized can come out of past and current interactions with their parents. If children usually have mostly positive experiences with their parents, this could affect their weight in many different ways. For example, having a warm and nurturing environment in which parents coordinate their behavior with that of

their child and scaffold situations to fit what the child is doing and set the stage for future behaviors, children may be less likely to develop maladaptive, externalizing, or internalizing behaviors. They may be more open to discussing problems that could lead to weight gain, along with depression and low self-esteem, with their parents. These relations are purely speculative and future studies should empirically study the potential relations among these variables.

There are a few limitations to this paper. First, the study was restricted to only the mother. Although most parenting style literature is directed toward the mother-child relationship, another parental figure prominent in the child's life could also play a role in the complex relations between the variables studied here. For instance, if a child spends a few hours after school each day at a grandparent's house who utilizes an entirely different parenting style and who has different beliefs regarding food and health, then, this could have an impact on the child's weight status. Second, parenting style was only assessed via self-report measures. Although self-report is the best way to gain an understanding of a person's goals and values, there are other aspects of parenting, such as behavior, that can be assessed through alternative means, such as observation. The third limitation is the way in which the parenting styles were categorized. The scoring of the Parenting Practices Questionnaire does not eliminate parents from fitting in multiple categories. Therefore, there are not "pure" parenting types. The sample size here was too small to allow more rigorous statistical techniques to eliminate parents from multiple parenting categories. A final limitation of this study is also connected with the operationalization of the parenting types. They were defined using a median split due to the small sample size. A larger sample size could allow the researcher to perform a

tertile or quartile split in order to define more "pure" types and compare extreme permissive parenting, for example, to extreme authoritarian and extreme authoritative parenting.

Future research using data from the FiSH project should compare the pre- and post-intervention parenting style measures. This study utilized only the pre-intervention parent questionnaires. Comparing both pre- and post-intervention data would help researchers have a better understanding of the role that parenting style may play in a child's weight status. Some of the interventions are aimed at teaching parents more effective ways of parenting their children. It could be hypothesized that, based on these interventions, parents who took part in them would be more likely to have a parenting style less conducive to child overweight or at-risk status. Future studies should look at the role that family interventions might play in the relation between parenting style and child weight. Future studies can also look at differences in weight status with age and as a function of gender. The sample here uses first grade children. It will be interesting to see, as the children age and become adolescents with greater freedom from parental monitoring, if the children who are at-risk become overweight. And, of these children, if they come from more permissive homes, as these data indicate they might; or, if a new trend is discovered.

This study sought to both replicate and expand our current knowledge of parenting style, ethnicity, and SES. In addition, it was intended to understand these variables in a setting not typically studied, rural America. Some of the findings presented here do replicate what we already know (e.g., Native Americans are at an increased risk for overweight). Other findings, however, bring a new perspective on the differences

between rural and urban America (e.g., high permissiveness and high SES increase a child's risk for overweight). Future research will hopefully extend these finding to better our understanding of children living in rural America.

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APPENDICES

APPENDIX A

PARENTING PRACTICES QUESTIONNAIRE

PP

This measure is designed to measure how often you exhibit behaviors towards your child.

	Never	Once in Awhile	About Half the Time	Very Often	Always
1. I am responsive to our child's feelings and needs.	○	○	○	○	○
2. I use physical punishment as a way of disciplining our child.	○	○	○	○	○
3. I take our child's desires into account before asking the child to do something.	○	○	○	○	○
4. When our child asks why he/she has to conform, I state, "Because I said so", or "I am the parent and I want you to."	○	○	○	○	○
5. I explain to our child how we feel about the child's good and bad behavior.	○	○	○	○	○
6. I spank when our child is disobedient.	○	○	○	○	○
7. I encourage our child to talk about his/her troubles.	○	○	○	○	○
8. I find it difficult to discipline our child.	○	○	○	○	○
9. I encourage our child to freely express him/herself even when disagreeing with parents.	○	○	○	○	○
10. I punish by taking privileges away from our child with little if any explanations.	○	○	○	○	○
11. I emphasize the reasons for rules.	○	○	○	○	○
12. I give comfort and understanding when our child is upset.	○	○	○	○	○
13. I yell or shout when our child misbehaves.	○	○	○	○	○
14. I give praise when our child is good.	○	○	○	○	○
15. I give into our child when the child causes a commotion about something.	○	○	○	○	○
16. I explode in anger towards our child.	○	○	○	○	○
17. I threaten our child with punishment more often than actually giving it.	○	○	○	○	○
18. I take into account our child's preferences in making plans for the family.	○	○	○	○	○
19. I grab our child when being disobedient.	○	○	○	○	○
20. I state punishments to our child and do not actually do them.	○	○	○	○	○
21. I show respect for our child's opinions by encouraging our child to express them.	○	○	○	○	○
22. I allow our child to give input into family rules.	○	○	○	○	○
23. I scold and criticize to make our child improve.	○	○	○	○	○
24. I spoil our child.	○	○	○	○	○
25. I give our child reasons why rules should be obeyed.	○	○	○	○	○
26. I use threats as punishment with little or no justification.	○	○	○	○	○
27. I have warm and intimate times together with our child.	○	○	○	○	○
28. I punish by putting our child off somewhere alone with little if any explanation.	○	○	○	○	○
29. I help our child to understand the impact of behavior by encouraging our child to talk about the consequences of his/her own actions.	○	○	○	○	○
30. I scold or criticize when our child's behavior doesn't meet our expectations.	○	○	○	○	○
31. I explain the consequences of the child's behavior.	○	○	○	○	○
32. I slap our child when the child misbehaves	○	○	○	○	○

PLEASE DO NOT WRITE IN THIS AREA

SERIAL # 7

FORM ID LINE

APPENDIX B

ITEMS USED FROM DEMOGRAPHIC QUESTIONNAIRE

1. Your date of birth: _____
Month Day Year

2. Gender of your child (check one): _____Male _____Female

3. Birth date of your child: _____
Month Day Year

4. What is your relationship to your child?
(example: mother, father, stepmother, foster father)_____

6. Your current household income per month before taxes (please check one):

_____ $ 0-100
_____ $ 100-499
_____ $ 500-999
_____ $ 1000-1499
_____ $ 1500-1999
_____ $ 2000-2499
_____ $ 2500-2999
_____ $ 3000-3499
_____ $ 3500-3999
_____ $ 4000 plus

7. Ethnic group of the child's biological mother (please check one):
_____ Native American Tribe: _____
_____ African-American
_____ Hispanic
_____ Asian
_____ White
_____ Multiethnic Describe: _____
_____ Other

8. Ethnic group of the child's biological father (please check one):
_____ Native American Tribe: _____
_____ African-American
_____ Hispanic
_____ Asian
_____ White
_____ Multiethnic Describe: _____
_____ Other

10. Are you currently employed or unemployed in this occupation (please check one)?
_____ employed _____unemployed

11. Please place an "X" next to the highest grade you completed in school.

_____ 6th grade
_____ 7th grade
_____ 8th grade
_____ 9th grade
_____ 10th grade
_____ 11th grade
_____ 12th grade
_____ some vo-tech
_____ some college courses
_____ vo-tech graduate
_____ college graduate

13. Monthly income of your spouse/partner before taxes (please check one):

_____ $ 0-100
_____ $ 100-499
_____ $ 500-999
_____ $ 1000-1499
_____ $ 1500-1999
_____ $ 2000-2499
_____ $ 2500-2999
_____ $ 3000-3499
_____ $ 3500-3999
_____ $ 4000 plus

15. Is your spouse/partner currently employed or unemployed in this occupation (please check one)?

_____ employed
_____unemployed

16. Please place a check mark next to the highest grade your spouse/partner completed in school.

_____ 6th grade
_____ 7th grade
_____ 8th grade
_____ 9th grade
_____ 10th grade
_____ 11th grade
_____ 12th grade
_____ some vo-tech
_____ some college courses
_____ vo-tech graduate
_____ college graduate

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL

Oklahoma State University Institutional Review Board

Date:	Monday, October 02, 2006
IRB Application No	HE0697
Proposal Title:	Parenting Style Differences in Overweight versus Non-overweight Children and the Potential Moderating Effects of Socioeconomic Status and Ethnicity
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 10/1/2007

Principal Investigator(s

Julie Rutledge
2119 N. Manning
Stillwater, OK 74075

Amanda W Harrist
323 HES
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Sue C. Jacobs, Chair
Institutional Review Board

VITA

Julie Marie Rutledge

Candidate for the Degree of

Master of Science

Thesis: PARENTING STYLE DIFFERENCES IN OVERWEIGHT VERSUS NON-OVERWEIGHT CHILDREN AND THE POTENTIAL MODERATING EFFECTS OF SOCIOECONOMIC STATUS AND ETHNICITY

Major Field: Human Development and Family Science

Biographical:

Personal Data: Born January 28, 1982, in Bartlesville, Oklahoma. Parents are Dr. Robert and Carol Rutledge. Brother is Jeremy Rutledge. Paternal grandparents are Bill and Marguerite Rutledge. Maternal grandparents are Granvil and Eula Sides.

Education: Graduated from Bartlesville High School, Bartlesville, Oklahoma, in May, 2000; received a Bachelor of Arts degree in Psychology from Oklahoma State University, Stillwater, Oklahoma, in December 2003. Completed the Requirements for the Master of Science degree at Oklahoma State University in May, 2007.

Experience: Employed by Oklahoma State University, Department of Human Development and Family Science, as a graduate research assistant and graduate teaching assistant, 2004 to present.

Professional Memberships: Society for Research in Child Development, Society for Research in Human Development, Kappa Omicron Nu, and Psi Chi.

Name: Julie Marie Rutledge Date of Degree: May, 2007

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: PARENTING STYLE DIFFERENCES IN OVERWEIGHT VERSUS NON-OVERWEIGHT CHILDREN AND THE POTENTIAL MODERATING EFFECTS OF SOCIOECONOMIC STATUS AND ETHNICITY

Pages in Study: 76 Candidate for the Degree of Master of Science

Major Field: Human Development and Family Science

This project sought to expand on the limited literature currently available on parenting styles and childhood overweight and to give a better understanding of the environmental correlates of childhood overweight. Since parenting occurs within the greater environment, other factors, including the family's SES and ethnicity, may play a role.

Native American mothers were more permissive and their children were more overweight than their European American counterparts. More permissive mothers were more likely to have a child who was at-risk or overweight than less permissive mothers. More authoritarian mothers were less likely to have a child who was at-risk or overweight than less authoritarian mothers. Logistic regression analyses revealed that the interaction between permissive parenting style and SES was positive and significant. Permissiveness predicted higher levels of overweight at high SES and slightly lower level of overweight at low SES and the difference in overweight between these two levels was significant.

ADVISER'S APPROVAL: Amanda Harrist, PhD