

THESIS

PARENTING STYLE AS A MODERATOR OF CHILD INTERNALIZATION OF  
PARENTAL VALUES

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## ABSTRACT

### PARENTING STYLE AS A MODERATOR OF CHILD INTERNALIZATION OF PARENTAL VALUES

Despite the extensive literature examining the general child outcomes and values related to different parenting styles, little research has focused on parenting style as a moderator of the intergenerational transmission of values. Previous research and theory has pointed to authoritative parenting as the most effective parenting style in regards to parents encouraging their children to internalize their values. Based on Baumrind's (1968, 1991) parenting theory and social learning theory (Bandura, 1977), this study examined authoritative parenting style as a moderator of intergenerational transmission of nutrition values from parent to child. Two hypotheses were tested related to parenting style, nutritional values, and child healthy food choices. The research used parent self-report measures of parenting style and nutritional values, as well as observational data on parenting style and food strictness. Child outcomes were measured using a food-choice task completed by the children. Results suggested that parents who value nutrition have children who make healthy choices more frequently in a behavioral task. Additionally, limited support was found for authoritative parenting dimensions as a moderator of the intergenerational value transmission process. The findings of this research suggest a possible protective mechanism of warmth against children's poor food choices. Based on the results, however, more research is needed on the intergenerational transmission of values.

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## TABLE OF CONTENTS

ABSTRACT .....	ii
ACKNOWLEDGEMENTS .....	iii
Introduction .....	1
Parental Influences on Child Diet.....	2
Parenting Dimensions and Styles .....	3
The Effects of Parenting Styles .....	4
Parenting Style as a Potential Moderator of Internalization of Values .....	8
The Current Study .....	10
Hypotheses .....	11
Method.....	13
Participants .....	13
Procedures .....	14
Measures.....	14
Analyses .....	16
Results .....	18
Bivariate Correlations.....	18
Hierarchal Multiple Regression.....	19
Discussion.....	23
References .....	30
Appendix A .....	34

## Introduction

Passing on values to their children is often an objective that parents try to achieve in raising children (Grusec, 1997). Whether it is values of education, character, or nutrition, parents strive to instill what they deem to be positive values into their children's lives. Values are learned and developed throughout life from experiences, education, and relationships. But one very important way in which children develop values is through their parents.

Because parenting behaviors are a common mechanism by which parents transmit values to children, parenting style typologies may have an important moderating effect on how well values are transmitted to children. The four common parenting typologies described by Baumrind (1991) include authoritative, authoritarian, permissive, and uninvolved. Although there has been a substantial amount of research conducted on the overall effects of parenting typologies on different child outcomes (e.g., Furnham & Chenge, 2000; Noack, 2004; Timpano, Keough, Mahaffey, Schmidt, & Abramowitz, 2010), including child values (e.g., Hardy, White, Zhang, & Ruchty, 2011; Martinez & Garcia, 2008), there has been little to no research on whether, and how, parenting typologies moderate the transmission of values from parent to child.

An important value that may be transmitted from parent to child is the value of healthy nutrition. In the current obesity epidemic in our society, healthy nutrition values are of special importance (Sheehan, Dubrava, DeChello, & Fang, 2003). If parents highly value nutrition but are unable to transmit that value to children successfully, children can internalize unhealthy nutrition habits that may contribute to the continuance of the obesity epidemic. There has been much research on how parenting styles predict different types of health, diet, and exercise habits (e.g., Arredondo et al., 2006; Chen & Kennedy, 2004; Gable & Lutz, 2000), but the proposed study will be the first investigation of whether parenting styles *moderate* the internalization of

nutrition values in children (i.e., the similarity between parents and children in terms of values related to health). In addition, this study will be one of the first to measure internalization of values via a behavior that is theoretically tied to nutritional values.

In the sections that follow, I will present research on different findings about parental influences on child diets and nutrition, as well as findings related to parenting styles and the main effects they have on child outcomes, including values. After previous findings have been presented, I will discuss why research is needed on possible moderating effects of parenting typologies on transmission of values from parent to child (i.e., child internalization of parent values). This moderating effect of parenting style on value transmission will be discussed as being particularly important within a nutrition outcome setting because the results should contribute to the research movement of understanding why and how childhood obesity occurs and how we can stop the rates of childhood obesity from increasing. Moreover, in this review, I will discuss how researching parenting style using an objective coding system in addition to self-report will strengthen research in the area of parenting styles.

### **Parental Influences on Child Diet**

There are several lines of research that suggest that parents influence their children's diet and nutrition; this evidence also provides support for the hypothesis that parents and children likely have similar values in health and nutrition domains. Parents who understand basic nutrition and are concerned for overall disease prevention have children who have a healthier diet (Gibson, Wardle, & Watts, 1998). In addition, parents who have more education tend to have children with a healthier nutrition status (Kumar & Ram, 2013). A few studies have also linked television exposure to unhealthy diet outcomes, indicating that the more parents allow their children to watch television, the higher risk children are at for developing an obesity-

promoting diet (Campbell, Crawford, & Ball, 2006; Taras, Sallis, Patterson, Nader, & Nelson, 1989).

Modeling of nutritional habits has also been found to be very positively associated with child diets (Campbell et al., 2006; Gillman et al., 2000; Wroten, O'Neil, Stuff, Liu, & Nicklas, 2012). For example, Campbell and colleagues (2006) found that the more opportunities that the family structure had for parental modeling of healthy eating, the more vegetables the children consumed. Modeling has also been found to be particularly important for low-income families (Wroten et al., 2012). Eating family dinners together has also been linked to healthy dietary intake patterns in children, most likely because eating dinners together provides more opportunities for parents to model healthy eating for children (Gillman et al., 2000). This research supports the first hypothesis that parents who value nutrition will likely have children who value nutrition as well.

### **Parenting Dimensions and Styles**

Baumrind, (1968, 1991) had a seminal influence on the field's understanding of parenting dimensions and typologies. In her early work, Baumrind (1968) discussed two dimensions of parenting: demandingness (i.e., expectations and structure) and responsiveness (i.e., warmth). Combinations of high and low levels of these two dimensions came to form four common styles of parenting. The first three styles of parenting (authoritative, authoritarian, and permissive) were described in Baumrind's work (1968), and Maccoby and Martin (1983) extended her research by adding the uninvolved category of parenting.

The first style of parenting, known as authoritative, represents parents who have both high levels of demandingness and high levels of responsiveness. These parents have high explicit expectations for their children, but show high levels of warmth and support towards their



children as well (Baumrind, 1991). Because of these dimensions, authoritative parents often spend time reasoning with their children as well as disciplining. From an authoritative perspective, disciplining with reasoning is more of an educational opportunity for the child than it is an opportunity of control for the parent.

Authoritarian parents have high levels of demandingness and low levels of responsiveness. These parents are considered to be controlling and do not show much support for their children on a day-to-day basis (Baumrind, 1991). Permissive parents have low levels of demandingness and high levels of responsiveness, and therefore they do not set clear and high expectations for their children, but they show them warmth and support (Baumrind, 1991). Permissive parents are often described as wanting to be a friend to their child as opposed to a parent figure. The last style of parenting described by Maccoby and Martin (1983) is uninvolved. This type of parent has low levels of demandingness and low levels of responsiveness. These parents are not very involved in their children's lives, which can often lead to deviant behavior in the children (e.g., Hoeve, Dubas, Gerris, van der Laan, & Smeenk, 2011).

### **The Effects of Parenting Styles**

**Child general outcomes and values.** There has been a substantial amount of research conducted on what child outcomes are associated with these different parenting styles (e.g., Furnham & Chenge, 2000; Noack, 2004; Timpano et al., 2010). It is worth noting, however, the direction of effects for parenting styles and child outcomes is not always clear. Some researchers argue that certain child behaviors may elicit different parenting styles and techniques (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). However, theoretical arguments about parenting style emphasize the effects that parents have on children.

Although findings can differ by culture, research has often pointed towards authoritative parenting style as the most effective in achieving successful child outcomes; consistent with this evidence, in the current study, authoritative parents are compared to nonauthoritative parents. Authoritative parenting is associated with higher levels of child self-esteem, happiness, and feelings of self-worth as well as lower rates of delinquency (Furnham & Cheng, 2000; Hoeve et al., 2011). There is also a link between children being raised by authoritative parents and higher levels of academic achievement (Noack, 2004; Pong, Hao, & Gardner, 2005). Authoritative parenting also has been associated with high family, social, and academic self-esteem in children (Martinez & Garcia, 2008). In contrast, relative to authoritative parenting, the authoritarian parenting style has been linked to childhood issues such as lower levels of self-reliance and self-worth, as well as increased levels of anxiety and obsessive compulsive symptoms (Furnham & Cheng, 2000; Timpano et al., 2010). It is important to point out, however, that in some cultures, authoritarian parenting is not associated with poorer child outcomes. For example, an authoritarian parenting style in Chinese families has been linked with positive child academic outcomes (Stevenson, Lee, Chen, Stigler, Hsu, & Kitamura, 1990).

Associations between child outcomes and permissive parenting styles have been mixed, depending on the context and culture. Children with permissive parents have been found to have a handful of positive outcomes such as child happiness (Furnham & Cheng, 2000) and high social and academic self esteem (Martinez & Garcia, 2008). Research on adolescents in Spain indicated that permissive parenting is the optimum type of parenting, based on child outcomes of self-esteem, emotional adjustment, social competence, and problem behaviors (Garcia & Gracia, 2009). However, there are several less positive outcomes as well, such as low self-control and low self-reliance (Furnham & Cheng, 2000). Although the child outcomes associated with

permissive parenting have been mixed, uninvolved parenting is consistently predictive of negative child outcomes. For instance, uninvolved parenting has been linked to high rates of child and adolescent delinquency (Hoeve et al., 2011).

Mental health outcomes have also been associated with parenting styles (e.g., Huta, 2012; Timpano et al., 2010). In regards to positive mental health, Huta (2012) found authoritative parenting to be linked with high eudemonia in children. This finding suggests that children of authoritative parents may value happiness more than children of authoritarian, permissive, or uninvolved parents. Another finding on the mental health of children indicated that authoritative parenting is negatively correlated with obsessive-compulsive beliefs and symptoms (Timpano et al., 2010). In contrast, authoritarian parenting techniques such as high control and demandingness have also been associated with more obsessive-compulsive beliefs and symptoms as compared to children of authoritative parents (Timpano et al., 2010).

Along with general child outcomes, there is evidence to support that different parenting typologies are related to types of values that individuals hold during childhood, adolescence, and adulthood. For example, authoritative parenting dimensions are associated with indicators of individual religiousness and spirituality of adult children who grew up in a religious home (Hardy et al., 2011; Heaven, Ciarrochi, & Leeson, 2010). Heaven and colleagues (2010) assessed parental religious values, parenting style, and child religious values in a longitudinal study following children from 7<sup>th</sup> to 10<sup>th</sup> grade. Results indicated that child perceptions of parental authoritativeness in the early adolescent years positively predicted later proreligious values and beliefs. As well as religion, values of universalism, security, conformity, and tradition have also been positively linked with authoritative parenting in adolescence (Martinez & Garcia, 2008).

Similarly, prosocial behaviors and values are positively associated with parental warmth, a dimension of authoritative parenting (Carlo, Mestre, Samper, Tur, & Armenta, 2010), suggesting that parental strictness can slow down or mitigate the development of prosocial values and behaviors.

**Child health outcomes and values.** As discussed previously, the current study focuses on parental value transmission and child internalization of nutritional values. Although there has been no research investigating parenting style as a moderator between parental nutrition values and child internalization of nutrition values, there has been some research showing general associations between parenting style and child health outcomes, mainly obesity and body mass index (e.g., Arredondo et al., 2006; Gable & Lutz, 2000; Kimiecik & Horn, 2012; Olvera & Power, 2010). The associations found have been mixed, depending somewhat on culture.

In a longitudinal study on school-aged children, Rhee, Lumeng, Appugliese, Kaciroti, and Bradley (2006) found there was a strong association between authoritarian parenting and children becoming overweight. Specifically, children of authoritarian mothers were more likely to become overweight compared to children of authoritative, permissive, or uninvolved parents (Rhee et al., 2006). Several cross-sectional studies have found similar associations between parenting styles and child health. Authoritarian and uninvolved parenting styles are positively associated with child BMI as well as availability of unhealthy foods in the home (Kremers, Brug, DeVries, & Engels, 2003; Mellin, Neumark-Sztainer, Story, Ireland, & Resnick, 2002). Authoritarian parents were also more likely to have children who did not eat breakfast as often as children of authoritative parents (Mellin et al., 2002). This finding is important because the consumption of breakfast is generally associated with being healthier (Dubois, Girard, Potvin, Farmer, & Tatone-Tokuda, 2009). However, Olvera and colleagues (2010) uncovered different

findings about authoritarian parents. In a longitudinal study on Mexican-American families, children of permissive parents were more susceptible to becoming overweight than children of authoritarian or authoritative parents. Taken together, this research suggests that although authoritarian parenting may not be the most detrimental parenting style for children's health, nonauthoritative forms of parenting are typically suboptimal for child health outcomes.

It is clear there have been several findings suggesting authoritarian parenting may be harmful to children's health, and in contrast, findings generally support authoritative parenting as being potentially beneficial to children's health. Arredondo and colleagues' (2006) findings suggest that authoritative parents have healthier children because parental positive reinforcement and monitoring are positively associated with children's healthy eating and exercise habits. Additionally, authoritative parenting is negatively associated with child and adolescent physical activity and BMI, as well as positively associated with availability of healthful foods such as fruits and vegetables (Gable & Lutz, 2000; Kremers et al., 2003). Authoritative parenting has also been linked with fitness task goal orientation in children, as compared to significantly lower fitness goal orientation from children raised with permissive parenting (Kimiecik & Horn, 2012). Perhaps health and exercise expectations set by authoritative parents are met more often because of the warmth involved in authoritative parenting as well. Although speculative, authoritative parenting may be associated with greater health orientation, which is then reflected into parenting practices.

### **Parenting Style as a Potential Moderator of Internalization of Values**

Although parenting typologies have been associated with child values, and research finds that children adopt values from parents in the process of intergenerational transmission (Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001), it is generally unclear if parenting style

moderates the transmission of the parents' values to children. Based on parenting style theory (Baumrind, 1989) and social learning theory (Bandura, 1977), it is hypothesized that children of authoritative parents will show the strongest signs of intergenerational transmission of nutritional values.

Successful transmission and internalization of a value occurs when the child understands and practices the value that the parent holds and transmits (Kochanska et al., 2003). This process of intergenerational value transmission begins when parents express or externalize their values (Goodnow, 1997). When children observe parents expressing a value, children select and interpret the value, and make a decision on whether to internalize or reject the value (Grusec & Goodnow, 1994; Kuczynski, Marshall, & Schell, 1997).

The mechanism by which parenting styles have effects on child outcomes is important to understand in order to fully grasp why parenting style make theoretical sense as a moderator of intergenerational value transmission. Authoritative parenting is based on two dimensions, responsiveness (warmth) and demandingness (expectations) (Baumrind, 1991). Theoretically, authoritative parents are both communicative and warm with their children. Children who are reared by warm, supportive parents are likely to identify with the parent (Grusec & Goodnow, 1994); effective communication is also likely to help children understand why parents value what they value. In that way, value modeling may be more effective. According to social learning theory (Bandura, 1977), identification and modeling are significant parts of children's learning and development. Therefore, based on theory and literature, the mechanisms by which values are transmitted from parent to children include parent communication, parent warmth, and child identification. Because those mechanisms are more likely to be present with authoritative

parenting, theory suggests that intergenerational value transmission would be most effective in families with authoritative parents.

### **The Current Study**

It is clear from the research that has been presented that parenting style is associated with several different child outcomes such as mental health, academic achievement, prosocial behaviors, goal orientation, and health outcomes (e.g., Gable & Lutz, 2000; Martinez & Garcia, 2008; Noack, 2004; Pong et al., 2005). There has been some research on the associations between parenting style and values in children (e.g., Carlo et al., 2010; Heaven et al., 2010; Timpano et al., 2010; for a review, see Grusec & Kuczynski, 1997), but little to no research has been done on whether and how parenting style moderates the value transmission between parent and child. Additionally, although there has been some research on health-relevant outcomes, including obesity and fruit and vegetable consumption, (e.g., Gable & Lutz, 2000; Kremers et al., 2003; Mellin et al., 2002), more research is necessary to fully understand the association between parenting styles and transmission of health-related values.

Understanding the moderating effects of parenting styles on transmission of health values has important real-world implications because of the current state of health and obesity in our country. As already mentioned, our society is currently experiencing a childhood obesity epidemic (Sheehan et al., 2003). Even if parents value health and try to pass those values on to children, parenting techniques could potentially be enhancing or hindering that process of intergenerational value transmission. If a parenting style can be identified that moderates the effectiveness of nutrition value transmission, interventionists can begin to understand how to help children be healthy and how to work on decreasing the rates of childhood obesity in our society.

In much of the research presented in this review, parenting style was measured via parent self-report (e.g., Carlo et al., 2010; Kimiecik & Horn, 2012; Martinez & Garcia, 2008). The current study will measure parenting style with both a self-report measure and an objective assessment of parenting style in a videotaped parent-child interaction during a situation in which health values are salient (i.e., grocery shopping). Collecting parenting style via both self-report and objective assessment is ideal because it allows for parental report about overall, general parenting across situations, and data that also captures in-the-moment parenting in a health-relevant situation. It also allowed for the opportunity to examine both discrepancies and commonalities between self-reported and observed parenting style.

Child internalization of nutrition values was measured by an activity in which children were shown a picture of a healthy food and less healthy food, and asked to choose which one they would prefer to eat. This method aimed to reduce potential biases associated with self-report because the child did not choose preferred food items with the parent's help. The child nutrition outcome variable is also unique because it was being measured by examining a behavior that is theoretically linked with nutrition values. The behaviors that children exhibit may predict obesity more than if they say they value nutrition. Therefore, being able to measure this value via behavior may result in clearer implications for professionals in the field.

## **Hypotheses**

Based on the fact that research supports intergenerational value transmission in certain contexts such as academic values (e.g., Jodl et al., 2001), the first hypothesis focuses on a general relationship between parent and child values:

H1: Parents who value health/nutrition have children who make healthier food choices in a grocery store setting.



Based on the complicated process of intergenerational value transmission and the theoretical role of authoritative parenting as encouraging that transmission (Kochanska et al., 2003), the second hypothesis posits that:

H2: Parenting style moderates the association between parent health values and children health and food choices, such that authoritative parents and children are more similar in terms of health and nutrition than authoritarian, permissive, or uninvolved parents and their children.

## Method

### Participants

Participants were recruited for a larger study on eye-tracking and food selection. The total sample included 153 parent-child dyads, with a mixture of mother-child (84%) and father-child (16%) pairs. Participants were recruited by flyers at local community centers and churches as well as advertisements in newspapers around the Minneapolis metro area. Children in the study ranged in age from 6 to 9 years old ( $M = 7.3$ ,  $SD = 1.1$ ). Parents ranged in age from 22 to 56 years old ( $M = 38$ ,  $SD = 6.2$ ). The participants were primarily White (82%), with 8% of participants being Black, 7% of the participants being Native or Alaskan American, and 4% of participants being Asian. The majority of families recruited were middle to upper-middle class families: according to self-report, median yearly family income was between \$50,000 and \$75,000; however, 13% of families earned less than \$25,000 per year, and 12% earned more than \$125,000 per year. In regards to education, 89% of participants had completed some college, a college degree, or a graduate degree.

Participants received compensation for participating in the study. Parents received a gift card to a supermarket as well as a gift card to compensate for transportation to the study. Children received a small toy, and the dyad took home six grocery items that they chose during the eye-tracking activity.

### Procedures

As mentioned previously, participants were invited to take place in a larger study on eye-tracking and nutrition labels. The procedures and measures described in this thesis are limited to those that were used for the purpose of this study. Parent-child dyads were invited into a research lab at the University of Minnesota. The parent and child dyad were both set up with eye tracking

glasses that recorded both what the participant saw and said during the procedure. The parent-child dyad was asked to enter a room that was set up to look like a grocery store. Together, the parent and child were asked to pick out two items from each of three categories of food (cookies/crackers, cereal, and chips). Participants were asked to make food choices similar to how they would in a regular grocery store, and the dyads took home the foods that they chose. Participants did not have a time limit, but the interactions generally lasted 5 to 10 minutes. After the participants finished choosing foods, the parent was asked to fill out a questionnaire on a computer while the child completed a food-choice task on a separate computer.

## **Measures**

**Parenting style.** Parenting style was measured by both self-report and observer ratings of behavior in the shopping scenario. The *Parenting Styles and Dimensions Questionnaire (PSDQ)* was used for parents to self-report their parenting style (Robinson, Mandleco, Olsen, & Hart, 2001). The PSDQ is a 62-item self-report scale that measures different parenting styles (Robinson et al., 2001). The items include statements regarding discipline strategies, communication, and warmth. Sample items include “I give comfort and understanding when our child is upset,” “I punish by putting our child off somewhere alone with little if any explanation,” and “I allow our child to interrupt others.” These items are rated from 1 (*never*) to 5 (*always*). For the current study, considered were scores on the authoritative subscale. Scores were calculated by finding the mean (Cronbach’s alpha = .86); higher scores reflect a greater tendency towards authoritative parenting.

In addition to the self-report, parenting style and its dimensions were assessed using observer ratings created for the purpose of this study. Trained coders watched the parent-child dyad video and listened to audio of the parent-child food choice interaction. The interactions

were coded for parental warmth, general parental strictness, and parental control specific to food choices. Each of these items was coded on a 1 (*none at all*) to 7 (*very much*) Likert-type scale. The interclass correlations for these variables ranged from .87 to .91. Based on scores on general strictness and warmth, parents were then categorized as authoritative or nonauthoritative; the *kappa* for the parenting style classification was .91.

We chose these measures of the parenting variables for a few reasons. First, we wanted to include both self-report and observed parenting style in order to achieve a balance in data. Therefore, we have one self-report variable for parenting style (authoritative parenting), and one observed variable of parenting style (authoritative vs. nonauthoritative parenting). Additionally, with the observed variables, we were also able to consider the two parenting style subdimensions, warmth and strictness. This strategy allowed us to examine if the subdimensions operated in similar or different ways in relation to parent and child nutrition values.

**Parent nutritional values.** Parent nutritional values were also measured using both self-report and observed data. To collect self-report data on parent nutritional values, we used an answer to a question that parents filled out after the food-choice procedure with their child. The questionnaire was created for the purposes of the larger eye tracking and food label study. The question used to assess parental nutritional values was “how important is it to you to purchase healthy foods,” with answers ranging from 1 (*not important*) to 4 (*very important*). This question was the most direct assessment of parents’ nutritional values; however, because this is the only one item and it is based on self-report, we also supplemented it with an observed variable. As mentioned previously, trained coders coded the parent-child interaction for parental control specific to food choices. This item was coded on a 1 (*none at all*) to 7 (*very much*) Likert-type scale. Scores on this dimension were assumed to be an indirect assessment of the value that

parents placed on nutrition (i.e., if parents place high value on nutrition, they are likely to be more strict in terms of food healthfulness while grocery shopping).

**Proportion of child healthy food choices.** Child nutritional outcomes were measured based on child behavior during a computer task completed by the child after the food-choice activity with the child's parent. The child saw a computer screen with two side-by-side, similar foods (e.g., two cereals), but one was considered a healthy food and one was considered a less healthy food (see appendix A for an example). As part of the larger study, children saw some images with and without cartoon characters. For the purposes of the current study, only the 10 trials without these characters were examined. Children were asked to choose which food they would rather eat. Children used a video game controller to choose their preference. Each child's nutritional outcome was calculated as the proportion of healthy foods that each child chose.

### **Analyses**

In order to examine the first hypothesis without controlling for potential confounding variables, bivariate associations between the continuous parenting style ratings and the other variables of interest were examined using correlations. Bivariate associations between the categorical parenting style ratings and other variables were also examined using one-way ANOVAs. Bivariate correlations were also examined to determine the interrelationships between the self-reported and observed parenting variables.

Multiple regression analyses were used to examine the associations of parent health values and child healthy choices, as well as to test parenting style as a moderator of the association between parent health values and child healthy choices. In all of these analyses, child sex, income, race, and parent education level were included as control variables because of their established link in past research with health- and obesity-relevant outcomes.

In step one, we tested the extent to which parenting style and parent nutritional values predicted the proportion of healthy food choices that children made. Next, moderation was tested by creating multiplicative interaction terms (after centering around the mean) and controlling for lower-order terms; interactions were tested separately and interpreted following procedures outlined by Aiken and West (1991), including plotting high (one standard deviation above the mean) and low (one standard deviation below the mean) values of the continuous variables; also, simple slopes were calculated and compared to zero (Aiken & West, 1991; Preacher, Curran, & Bauer, 2004). Analyses separately examined self-reports of parental nutrition values (Table 2) and observed food strictness (Table 3) as measures of parental values. In each table, analyses are presented for four different measures of parenting style: self-reported parenting style, observed parenting style, observed levels of warmth, and observed levels of general strictness.

## Results

### Bivariate correlations

Descriptive statistics for the main variables of interest as well as simple bivariate correlations among the main variables of interest and possible confounding variables are presented in Table 1. There were several interrelations among the different parenting variables. Compared to nonauthoritative parents, parents who were observed to be authoritative were also observed to have greater food strictness. Additionally, parents who were observed to be warmer also self-reported more authoritative parenting, and were more likely to be rated as authoritative based on observations of their behavior. Parents observed to be generally strict were more likely to be classified as authoritative by observers. However, parent-reported authoritative parenting and observed authoritative parenting were not significantly correlated, nor were parent reports about the importance of nutrition and observed food strictness. Finally, parenting was related to the proportion of healthy foods chosen by children: parents who reported that nutrition was more important to them had children who made more healthy choices.

Table 1  
*Descriptive Statistics for and Correlations between Main Variables of Interest*

	1	2	3	4	5	6	7	8	9	10	11
1. Parent-reported Nutrition Importance	X										
2. Observed Food Strictness	.09	X									
3. Self-reported Authoritative parenting <sup>a</sup>	.16	.00	X								
4. Authoritative vs. Not	.02	.42*	.11	X							
5. Warmth	.07	.13	.18*	.37**	X						
6. General Strictness	.16*	.50*	.02	.32**	.08	X					
7. Proportion of Child Healthy Food Choices	.20*	-.00	.12	-.04	.09	-.01	X				
8. Child Sex	.28*	.16*	.03	-.04	-.01	.12	.09	X			
9. Family Income	.02	.01	-.04	.08	.24**	.06	-.12	-.12	X		
10. White/Non-White	.20*	.14	.08	.08	.32**	.01	-.03	-.03	.20*	X	
11. Parental Education	.00	.16	-.01	.05	.23**	.13	-.00	.03	.44	.22**	X
<i>M</i>	3.14	0.52	0.61	0.42	4.17	3.47	0.36	1.50	3.39	0.82	0.65
<i>SD</i>	0.77	0.50	0.04	0.49	1.34	1.54	0.22	0.50	1.63	0.38	0.13

\*  $p < .05$  \*\*  $p < .01$  \*SR notes parent self-report of parenting style

## Hierarchical multiple regressions

In regards to the first hypothesis that parents who value nutrition have children who make healthier food choices, results indicated that across analyses, parents who reported valuing nutrition had children who chose healthy food more frequently (see Tables 2 and 3). According to Cohen (1988), this is a small effect. In contrast, observed food strictness was not related to child healthy food choices. These results provided some support for the first hypothesis in that when parents self-reported that they value nutrition, their children tended to choose more healthy options as compared to children of parents that did not have high nutrition value.

Table 2  
*Hierarchical Multiple Regression for Proportion of Healthy Child Food Choices with Self-Report Parental Nutrition Importance<sup>b</sup>*

	Proportion of Healthy Foods Chosen by Child			
	<i>b</i>	<i>SE</i>	$\beta$	$r_{sp}^2$
Step One				
SR Authoritative Parenting <sup>a</sup>	.528	.424	.104	.010
Nutrition Importance	.057*	.025	.203	.035
Step Two				
SR Authoritative Parenting	.553	.438	.109	.011
Nutrition Importance	.057*	.025	.203	.035
SR Authoritative X Nutrition Importance	.127	.526	.021	.000
Step One				
Authoritative Parenting vs. Not	-.002	.037	-.004	.000
Nutrition Importance	.062*	.025	.218	.042
Step Two				
Authoritative Parenting vs. Not	-.001	.037	-.001	.000
Nutrition Importance	.082**	.031	.292	.047
Authoritative vs. Not X Nutrition Importance	.052	.048	-.116	.008
Step One				
Warmth	.018	.014	.110	.010
Nutrition Importance	.061*	.025	.217	.041
Step Two				
Warmth	.022	.014	.134	.015
Nutrition Importance	.059*	.025	.207	.038
Warmth X Nutrition Importance	-.032*	.016	-.171	.028
Step One				
General Strictness	-.006	.012	-.041	.002
Nutrition Importance	.064*	.025	.225	.043
Step Two				
General Strictness	-.006	.012	-.044	.002
Nutrition Importance	.063*	.025	.223	.042
General Strictness X Nutrition Importance	.005	.016	.024	.000

\* $p < .05$  \*\* $p < .01$  <sup>a</sup>SR = self-reported <sup>b</sup> Controlled for in each regression but not presented here were child sex, parental education, family income, and ethnicity (White vs. not White).



Table 3. Hierarchical Multiple Regression for Proportion of Healthy Child Food Choices with Observed Food Strictness<sup>a</sup>

Proportion of Healthy Foods Chosen by Child				
	<i>b</i>	<i>SE</i>	$\beta$	<i>r</i> <sub>sp</sub> <sup>2</sup>
Step One				
SR Authoritative Parenting <sup>1</sup>	.635	.429	.124	.015
Food Strictness	-.003	.038	-.008	.000
Step Two				
SR Authoritative Parenting	-.069	.645	-.013	.000
Food Strictness	-.004	.038	-.010	.000
SR Authoritative X Food Strictness	1.26	.862	.183	.015
Step One				
Authoritative Parenting vs. Not	.001	.042	.001	.000
Food Strictness	-.005	.042	-.011	.000
Step Two				
Authoritative Parenting vs. Not	-.099	.068	-.222	.015
Food Strictness	-.064	.053	-.146	.010
Authoritative vs. Not X Food Strictness	.163 <sup>+</sup>	.088	.344	.024
Step One				
Warmth	.020	.015	.125	.013
Food Strictness	-.007	.038	-.017	.000
Step Two				
Warmth	.017	.022	.105	.004
Food Strictness	-.008	.038	-.018	.000
Warmth X Food Strictness	.006	.029	.026	.000
Step One				
General Strictness	-.004	.014	-.031	.000
Food Strictness	.003	.044	.006	.000
Step Two				
General Strictness	-.019	.019	-.134	.007
Food Strictness	.000	.044	-.001	.000
General Strictness X Food Strictness	.033	.028	.146	.009

<sup>a</sup> *p* < .05, <sup>\*\*</sup> *p* < .01, <sup>+</sup> *p* < .10<sup>a</sup> Controlled for in each regression but not presented here were child sex, parental education, family income, and ethnicity (White vs. not White). <sup>1</sup>SR notes parent self-report of parenting style

There was some, albeit limited, evidence for the second hypothesis that parenting style moderates the association between parent health values and child health choices. Warmth was a significant moderator of the association between parent reports of nutritional importance and child healthy food choices (see Table 2). The effect size of this interaction is considered to be fairly moderate (Cohen, 1988). Examination of this interaction (see Figure 1) indicated that for parents who were observed to have low levels of warmth, there was a positive association between parent values and children’s healthy choices, such that the proportion of child healthy food choices increased as level of parent nutrition importance increased. For parents who were

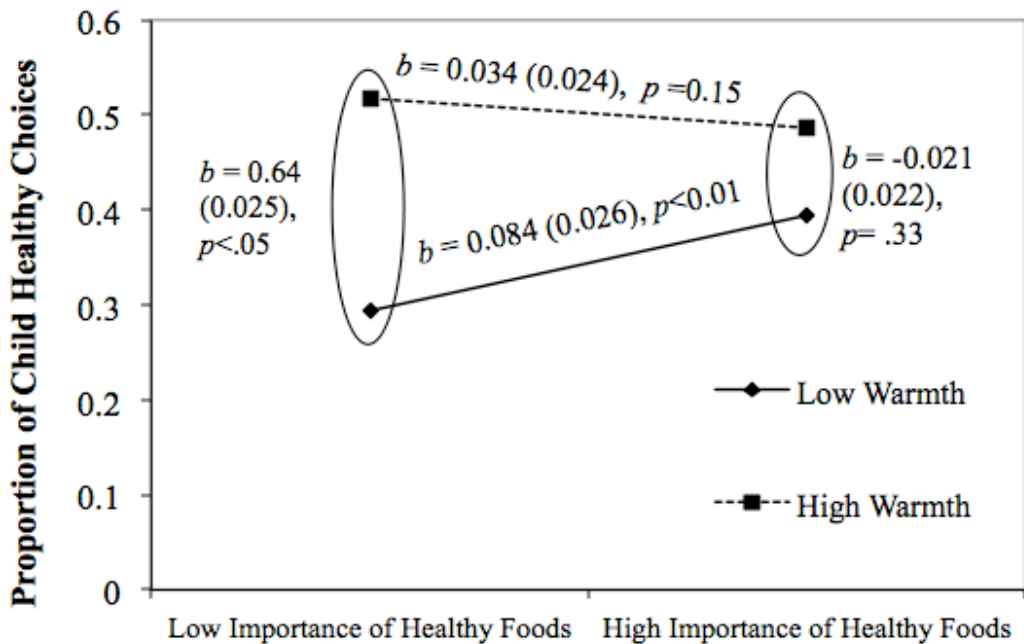


Figure 1. Observed parental warmth moderates the association between parent reported importance of purchasing healthy foods and proportion of child healthy food choices.

observed to have high levels of warmth, the proportion of the child's healthy food choices was not related to parent nutrition importance. The endpoints on Figure 1 also indicated that for parents who self-reported low levels of nutrition values, parental warmth predicted healthier food choices in children. For parents who self-reported that they highly valued nutrition, there was no significant difference in child healthy choices based on levels of parental warmth.

Additionally, there was a trend-level interaction between observed authoritative parenting and observed food strictness in relation to child healthy food choices. According to Cohen (1988), the effect size of this interaction is also considered small. Parents who were observed to be high on food strictness (presumed to be an indicator of the importance of healthfulness to parents) and who were also observed to be authoritative had children who more frequently chose

healthy foods than did all other children (i.e., children of parents who were observed to be low on food strictness, nonauthoritative, or both) (see Figure 2).

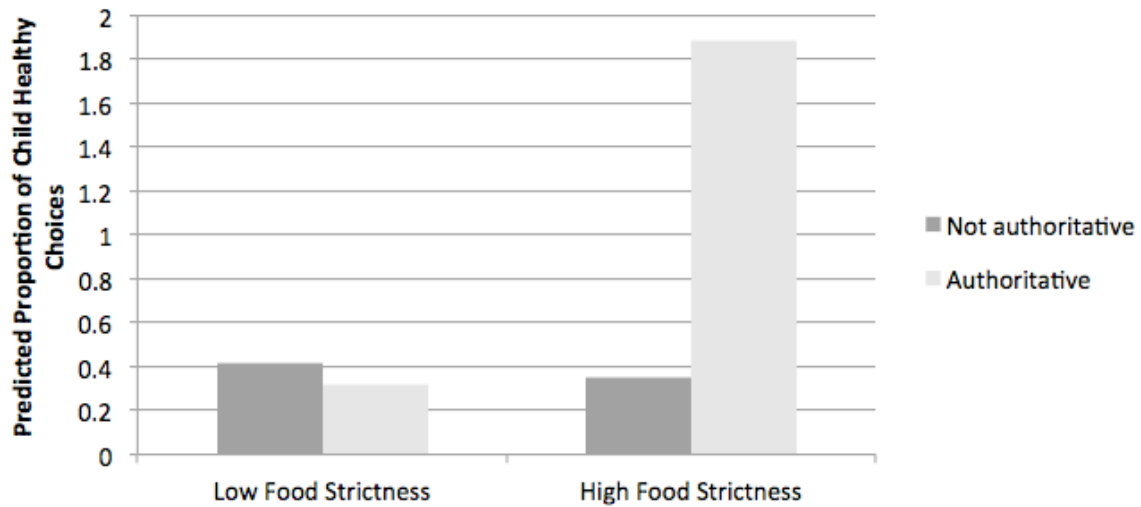


Figure 2. Observed authoritative parenting moderates the association between observed parental food strictness and proportion of child healthy food choices. No simple slopes were significant, with  $bs < .064, ps > .16$ .

## Discussion

The present study examined whether parental values about nutrition are related to the healthfulness of children's food choices, as well as whether parenting style moderates the transmission of nutritional values from parent to child. Using both self-report and observed measures of parenting style and parent nutritional importance, this study adds to the growing body of research on the main and moderating effects that parenting style has on different child outcomes. This study has several real-world implications as well as implications for further research on parenting styles. This study aimed to pinpoint if parenting styles can strengthen or diminish the association between parent and child values, and therefore, inform both parent education programs as well as programs that aim to reduce the incidence of childhood obesity. The major findings of this study suggested that children of parents who highly value nutrition more frequently choose healthy foods than do children of parents who do not value nutrition; however, there was limited support for the hypothesis that authoritative parenting strengthens the transmission of nutrition values from parent to child.

The first hypothesis was supported when parent nutrition value was measured via parent self-report, as opposed to observation. Parents who self-reported that they valued nutrition had children who chose more healthy options on the food choice task as compared to parents who did not self-report that they placed high value on health. This finding is consistent with past literature that children tend to have similar values as parents (Jodl et al., 2001). This finding builds on past research by providing some of the first evidence for health value similarities between parents and children. Values are difficult to measure objectively because they are internalized within a person; however, by measuring children's behavior that should be reflective of health value, we were able to measure the internalization of the value in a concrete way.

In regards to the second hypothesis, there were only two detectable interactions in the current study, and the patterns were quite different across interactions. Observed parental warmth predicted healthier child choices only for parents who self-reported that they did not place high value of importance on nutrition. In contrast, there was no such association for parents who valued nutrition. Based on theory and past research ( e.g., Gable & Lutz, 2000; Kremers et al., 2003; Kochanska et al., 2003; Mellin et al., 2002), the hypothesis was that authoritative parenting would predict healthier child behavior when parents placed more value on nutrition (e.g., that authoritative parenting would facilitate parent-child similarity). Because warmth is a dimension of the authoritative parenting style, it was predicted that warmth would also predict a stronger association between parent and child health values as compared to low parental warmth, however, that prediction was not supported by the findings.

One possible explanation for this interesting finding that warmth was unrelated to value transmission? is that the parenting dimension that was found to be a moderator in this case, warmth, is present in both authoritative and permissive parents. Therefore, this finding is not necessarily indicative of authoritative parenting; it may instead reflect authoritative and permissive parenting versus authoritarian and uninvolved parenting. Because the difference in endpoints between low and high parental warmth was significant, this finding may also suggest that warmth serves as a protective factor for children's health in situations that parents do not value nutrition. Although speculative, even if warm parents do not claim to value nutrition themselves, they may understand the importance of nutrition for the well-being of their children and may therefore encourage their children to make healthy nutrition choices more frequently than nonwarm parents. Also, perhaps warm parents foster and encourage children to be open to new experiences, including trying new foods. Although this finding is not consistent with

theoretical orientations about the nature of a moderating relationship between parenting style and intergenerational value transmission, it provides support for the overall positive outcomes associated with authoritative and warm parenting (e.g.; Gable & Lutz, 2000; Martinez & Garcia, 2008; Noack, 2004; Pong et al., 2005).

In contrast, there was a trend-level moderating effect of observed parenting style on the association between observed nutritional importance (food strictness) and child healthy food choice outcomes. The highest proportion of healthy child choices was evident if the children had parents who were observed to be stricter with their children about food choices and also were observed to be authoritative in their parenting style. All other children (i.e., those with nonauthoritative parents, or parents who were not strict about food choices, or both) showed similar, and lower, proportions of healthy food choices. This trend indicates some support for the hypothesis that authoritative parenting increases the effectiveness of parent to child transmission of nutritional values; however, this interaction was not statistically significant. This finding may suggest, however, that food strictness is important in the context of authoritative parenting but not on its own. That is, perhaps strictness is not as effective when it is not paired with warmth, an argument in line with theoretical arguments about the effectiveness of authoritative parenting (Baumrind, 1989; Furnham & Cheng, 2000; Hovee et al., 2011).

Although this finding provides some support for hypothesis two, and is consistent with past research on intergenerational value transmission and the theoretical role of parenting style (Jodl et al., 2001; Kochanska et al., 2003), more research needs to be conducted to truly understand the possible moderating effects of parenting style on nutritional value transmission. Unfortunately, the results of this study do not generally support authoritative parenting as a moderator of the process of intergenerational nutritional value transmission. Because of the

limitations that will be discussed, it is necessary to examine parenting style as a moderator of intergenerational value transmission in regards to other values than nutrition, as well as conduct a similar study on children of different ages.

A unique aspect of this study discussed was the use of both self-report and observational methods to operationalize parenting style and parent nutrition values. It is interesting that there were few correlations between self-reported and observed parenting style; the only evident bivariate association was that observed parental warmth was correlated with parent reports of authoritative parenting. Observed and self-reported parent nutrition values were not significantly correlated. It is also interesting that support for the first hypothesis was found using only the self-report data on nutrition importance. There are a few possible reasons for these patterns. First, food strictness was observed in one specific situation; it is possible that more general parenting behavior that occurs across situations may be more predictive of children health values and behavior. Second, it is possible that observed food strictness is a less appropriate measure of nutritional values than is parental self-report. Self-report measures are perhaps better at tapping into interval values as opposed to observed behavior, which are more appropriate for measuring situation-specific actions (Cairns & Green, 1979). Or, as mentioned previously, perhaps food strictness while grocery shopping is not effective at promoting child internalization of parental values if it is not accompanied by parental warmth. It is also worth noting that the self-report data on nutritional importance may capture parental nutritional values and monitoring behaviors across multiple situations and time, whereas the observational data is only reflective of that one situation.

In addition, as discussed, when there was evidence for moderation, the patterns differed depending on whether observed or self-reported nutrition values were examined. Both observed

and self-report data yielded different responses, which highlights the importance in using both types of data collection because they tap into different kinds of information. Additionally, self-report and observed measures of nutritional importance could have been tapping into different values or behaviors. The self-reported nutritional value question asked parents to report how important it was to the *parent* to pay attention to nutrition. The question did not inquire about how important it is for the parent to teach his or her children about nutritional values. The question also did not inquire about how important it is for the parent to monitor his or her children's nutritional choices, which may be partially captured in the observed food strictness variable. In contrast, the observed food strictness may have been affected by the fact that the parents were aware that they were being videotaped and audio recorded. Therefore, social desirability may have affected behavior during the interactions. Additionally, observed food strictness could be a result of parents wanting or maintaining control over their children's decisions rather than a true measure of nutrition values. Even if parents do not value nutrition, they may still try to control the food choices their children make in order to maintain control.

This study had several limitations that need to be noted. First, the sample was limited in diversity. The sample used for this study was collected in a Midwestern metropolitan area; however, the sample was still lacking in ethnic, educational, and socioeconomic diversity, which may limit generalizability of the findings. Next, it is important to point out issues related to measurement of nutrition importance. For example, parents' self-report of nutrition importance was measured based on the answer to one question. Future research on this topic should aim to measure nutritional importance in a broader sense, with a more in-depth measure of these values. There was also skew evident in the way that parents responded to this question. Parents were asked to indicate on a scale of one to four (one being not important and four being very



important) how important it is to shop and buy healthy foods. None of the parents in our study indicated a one (not important) on this question. Therefore, low importance of nutrition for the purposes of this study is considered “somewhat important”. In future studies, it would be beneficial to measure parent values using more than one question to ensure reliability and depth of the variable.

Additionally, observed variables (e.g., parenting style, warmth, food strictness) were collected from a short video of the parent/child interaction. Most of the videos ranged from 3 to 10 minutes in length. The length of the videos could be considered a limitation because of the complexity of dimensions such as parenting, warmth, and strictness. Coding longer interactions (perhaps across situational contexts) of the parent/child dyads would allow for a more accurate and in depth measure of observed variables.

It is also important to consider bidirectional effects between parents and children when discussing the association between parenting styles and any potential associations with child outcomes. It is difficult to know if authoritative parenting causes child outcomes, or if child behaviors elicit a particular parenting style more or less likely. For example, perhaps children who make healthier choices, or children who share the same values with their parents, are easier to parent authoritatively. Although it is thought that there are true effects of parenting styles on child outcomes, the current study was not able to test causal effects of parenting style on children’s values; the potential for bidirectional effects need to be recognized. Future research will be needed to assess the potentially causal relations between parenting styles and various child outcomes. Measuring children’s perceptions of parenting style, parental warmth, parental strictness, and parent nutrition values in future research could also be used to address possible bidirectional effects as well as understand why a child is or is not internalizing parent values.

In addition, although measuring the outcome variable (child nutrition values) and the observed parent nutritional value (food strictness) via behaviors that are assumed to be indicative of values can be beneficial, it can also be considered a limitation. Additional research should be conducted to determine the extent to which these observed behaviors reflect child and parent values; the low correlation between parent-reported nutritional values and observed food strictness suggest that, as discussed previously, these variables tap into different dimensions. It is also important to note that the behaviors used to measure child nutrition values and parent nutrition importance were measured within a lab setting and may not translate to nutritional values in the real world. Finally, in the current study, we were also unable to assess genetics as a potential confounding variable or cause of value transmission. There has been some research support that genetics are linked to certain values that children hold (e.g., Hatemi, Alford, Hibbing, Martin, & Eaves, 2009; Settle, Dawes, & Fowler, 2009) and we were unable to address those possible genetic links in our study.

Overall, the results of the current study provide support for the intergenerational transmission of health values from parent to child; in general, children made more healthy choices when parents placed more value on nutrition and health. The results of the current study suggest that there needs to be more research conducted on the moderating role of parenting style in the intergenerational value transmission process. There were some findings, although very limited, that may point to warmth and/or authoritative parenting being beneficial in passing health values from generation to generation. Additionally, the findings suggest that encouraging parents to be warm may help encourage healthy nutrition behaviors in children.

## References

- Aiken, L.S., & West, S.G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, London: Sage.
- Arredondo, E. M., Elder, J. P., Ayala, G. X., Campbell, N., Baquero, B. & Duerksen, S. (2006) Is parenting style related to children's healthy eating and physical activity in Latino families? *Health Education Research*, 21, 862-871.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Baumrind, D. (1968) Authoritarian versus authoritative parental control. *Adolescence*, 3, 255-272.
- Baumrind, D. (1989) Rearing competent children. In W. Damon (Ed.), *Child Development Today and Tomorrow* (pp. 349-378). San Francisco: Jossey-Bass.
- Baumrind, D. (1991) The influence of parenting style of adolescent competence and substance use. *Journal of Early Adolescence*, 11, 56-95.
- Cairns, R. B., & Green, J. A. (1979). How to assess personality and social patterns: Observations or ratings? In R.B. Cairns (Eds) *Analysis of Social Interaction*. Hillsdale, New Jersey: Erlbaum.
- Campbell, K. J., Crawford, D. A., & Ball, K. (2006). Family food environment and dietary behaviors likely to promote fatness in 5-6 year-old children. *International Journal of Obesity*, 30, 1272-1280.
- Carlo, G., Mestre, M. V., Samper, P., Tur, A., & Armenta, B. E. (2010) The longitudinal relations among dimensions of parenting styles, sympathy, prosocial moral reasoning, and prosocial behaviors. *International Journal of Behavioral Development*, 35, 116-124. doi: 10.1177/0165025410375921
- Chen, J., & Kennedy, C. (2004). Family functioning, parenting style, and Chinese children's weight status. *Journal of Family Nursing*, 10, 262-279.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. New Jersey: Lawrence Erlbaum Associates.
- Collins, W., Maccoby, E. E., Steinberg, L., Hetherington, E., & Bornstein, M. H. (2000). Contemporary research on parenting: The case for nature and nurture. *American Psychologist*, 55, 218-232.
- Dubois, L., Girard, M., Potvin Kent, M., Farmer, A., & Tatone-Tokuda, F. (2009). Breakfast skipping is associated with differences in meal patterns, macronutrient intakes and overweight among pre-school children. *Public Health Nutrition*, 12, 19-28.

- Furnham, A., & Cheng, H. (2000) Perceived parental behavior, self-esteem and happiness. *Social Psychiatry and Psychiatric Epidemiology*, 35, 463-470.
- Gable, S., & Lutz, S. (2000). Household, parent and child contributions to childhood obesity. *Family Relations*, 4, 293-300.
- Garcia, F., & Gracia, E. (2009). Is always authoritative the optimum parenting style? Evidence from Spanish families. *Adolescence*, 44, 101-131.
- Gibson, E. L., Wardle, J., & Watts, C. J. (1998). Fruit and vegetable consumption, nutritional knowledge and health beliefs in mothers and children. *Appetite*, 31, 205-228.
- Gillman, M. W., Rifas-Shiman, S. L., Frazier, A. L., Rockett, H. R., Camargo, C. A., & Field, A. E. (2000). Family dinner and diet quality among older children and adolescents. *Archives of Family Medicine*, 9, 235-240.
- Gniewosz, B. & Noack, P. (2012). Mamakind or papakind? [Mom's child or Dad's child]: Parent-specific patterns in early adolescents' intergenerational academic value transmission. *Learning and Individual Differences*, 22, 544-548. doi:10.1016/j.lindif.2012.03.003
- Goodnow, J. J. (1997). Parenting and the transmission and internalization of values: From social-cultural perspectives to within-family analyses. In J. E. Grusec, & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (p. 333-361). New York, NY: John Wiley & Sons, Inc.
- Grusec, J. E. (1997). A history of research on parenting strategies and children's internalization of values. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (p. 333-361). New York, NY: John Wiley & Sons, Inc.
- Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology*, 30, 4-19.
- Hardy, S. A., White, J. A., Zhang, A., & Ruchty, J. (2011) Parenting and the socialization of religiousness and spirituality. *Psychology of Religion and Spirituality*, 3, 217-230. doi: 10.1037/a0021600
- Hatemi, P. K., Alford, J. R., Hibbing, J. R., Martin, N. G., & Eaves, L. J. (2009). Is there a "party" in your genes? *Political Research Quarterly*, 62, 584-600.
- Heaven, P. C. L., Ciarrochi, J., & Leeson, P. (2010). Parental styles and religious values among teenagers: A 3-year prospective analysis. *The Journal of Genetic Psychology*, 17, 93-99.

- Hoeve, M., Dubas, J. P., Gerris, J. R. M., van der Laan, P. H., & Smeenk, W. (2011) Maternal and paternal parenting styles: Unique and combined links to adolescent and early adult delinquency. *Journal of Adolescence*, *34*, 813-827.
- Huta, V. (2012). Linking peoples' pursuit of eudaimonia and hedonia with characteristics of their parents: Parenting styles, verbally endorsed values, and role modeling. *Journal of Happiness Studies*, *13*, 47-61. doi: 10.1007/s10902-011-9249-7
- Jodl, K., Michael, A., Malanchuk, O., Eccles, J. S., & Sameroff, A. (2001) Parents' roles in shaping early adolescents' occupational aspirations. *Child Development*, *72*, 1247-1265. doi: 10.1111/1467-8624.00345
- Kimiecik, J. C., & Horn, T. S. (2012) Examining the relationship between family context and children's physical activity beliefs: The role of parenting style. *Psychology of Sport and Exercise*, *13*, 10-18. doi: 10.1016/j.psychsport.2011.08.004
- Kochanska, G., Aksan, N., & Nichols, K. E. (2003) Maternal power assertion in discipline and moral discourse contexts: Commonalities, differences, and implications for children's moral conduct and cognition. *Developmental Psychology*, *39*, 949-963. doi:10.1037/0012-1649.39.6.949
- Kremers, S. P., Brug, J., DeVries, H., & Engels, R. C. (2003). Parenting style and adolescent fruit consumption. *Appetite*, *41*, 43-50.
- Kuczynski, L., Marshall, S., & Schell, K. (1997). Value socialization in a bidirectional context. In J. E. Grusec, & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (p. 23-50). New York, NY: Wiley.
- Kumar, A., & Ram, F. (2013). Influence of family structure on child health: Evidence from India. *Journal of Biosocial Science*, *45*, 577-599. doi: 10.1017/S0021932012000764
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In P. H. Mussen & E. M. Hetherington (Eds.), *Handbook of child psychology: Vol. 4. Socialization, personality and social development*. New York: Wiley.
- Martinez, I., & Garcia, J. F. (2008). Internalization of values and self-esteem among Brazilian teenagers from authoritative indulgent, authoritarian, and neglectful homes. *Adolescence*, *43*, 13-29.
- Mellin, A. E., Neumark-Sztainer, D., Story, M., Ireland, M., & Resnick, M. D. (2002). Unhealthy behaviors and psychosocial difficulties among overweight adolescents: The potential impact of familial factors. *Journal of Adolescent Health*, *31*, 145-153.
- Noack, P. (2004) The family context of preadolescents' orientations toward education: Effects of maternal orientations and behavior. *Journal of Educational Psychology*, *96*, 714-722. doi: 10.1037/0022-0663.96.4.714

- Olvera, N., & Power, T. G. (2010). Brief report: Parenting styles and obesity in Mexican American children: A longitudinal study. *Journal of Pediatric Psychology, 35*, 243-249.
- Pong, S. L., Hao, L., & Gardner, E. (2005). The roles of parenting styles and social capital in the school performance of immigrant Asian and Hispanic adolescents. *Social Sciences Quarterly, 86*, 928-951.
- Preacher, K.J., Curran, P.J., & Bauer, D.J. (2004). Simple intercepts, simple slopes, and regions of significant in MLR 2-way interactions. Retrieved from <http://www.unc.edu/~preacher/interact/>
- Rhee, K. E., Lumeng, J. C., Appugliese, D. P., Kaciroti, N., & Bradley, R. H. (2006). Parenting styles and overweight status in first grade. *Pediatrics, 117*, 2047-2054.
- Robinson, C. C., Mandleco, B., Olsen, S. F., & Hart, C. H. (2001). The parenting styles and dimensions questionnaire (PSDQ). In B. F. Perlmutter, J. Touliatos, & G. W. Holden (Eds.), *Handbook of family measurement techniques. Instruments and index* (pp. 319-321). Thousand Oaks, CA: Sage.
- Settle, J. E., Dawes, C. T., & Fowler, J. H. (2009). The heritability of partisan attachment. *Political Research Quarterly, 62*, 601-613.
- Sheehan, T. J., DuBrava, S., DeChello, L. M., Fang, Z. (2003). Rates of weight change for black and white Americans over a twenty-year period. *International Journal of Obesity and Related Metabolic Disorders, 27*, 498-504.
- Stevenson, H. W., Lee, S., Chen, C., Stigler, J. W., Hsu, C., & Kitamura, S. (1990). Contests of achievement. *Monographs of the Society for Research in Child Development, 55*, 1-2.
- Taras, H., Sallis, J., Patterson, T., Nader, P. R., & Nelson, J. (1989). Television's influence on children's diet and physical activity. *Journal of Developmental & Behavioral Pediatrics, 10*, 176-180.
- Timpano, K. R., Keough, M. E., Mahaffey, B., Schmidt, N. B., & Abramowitz, J. (2010). Parenting and obsessive compulsive symptoms: Implications of authoritarian parenting. *Journal of Cognitive Psychotherapy: An International Quarterly, 24*, 131-164. doi: 10.1891/0889-8391.24.3.151
- Wroten, K. C., O'Neil, C. E., Stuff, J. E., Liu, Y., & Nicklas, T. A. (2012). Resemblance of dietary intakes of snacks, sweets, fruit, and vegetables among mother-child dyads from low income families. *Appetite, 59*, 316-323.

Appendix A

