

Adolescent Food Choice: Developing and Evaluating a Model of Parental Influence

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ABSTRACT

The following research integrated the Theory of Planned Behavior with variables from the consumer socialization and parenting literatures to explore parental impact on adolescent food decision-making. Three specific types of parenting practices (expectation, monitoring, and inducement/enforcement behaviors), parenting style, and family communication style were investigated. A multi-method approach was taken to develop and test the integrated model. Study 1 used interviews to identify food-related parental expectation, monitoring, and inducement/enforcement behaviors reported by both normal and overweight parents and adolescents. Study 2 evaluated a structural model of adolescent food choice, including predictors from the Theory of Planned Behavior, the food-related parenting practices identified in the interviews, parenting style, and family communication style. The findings suggest that specific parenting practices have an impact on adolescent food choices beyond predictors from the TPB.

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CHAPTER 1 – OVERVIEW

1.1 Introduction

Research is comprised of three domains: 1) a theoretical domain consisting of a set of concepts and their relationships, 2) a methodological domain consisting of measures of those concepts and a design to test their relationships, and 3) a substantive domain consisting of a phenomenon or context of interest to study (Brinberg and McGrath 1985). The following research integrated the Theory of Planned Behavior with work from the consumer socialization and parenting literatures (theoretical) to examine adolescent food decision-making (substantive) using a multi-method approach to develop and test a structural model (methodological). A brief overview of all three critical components is provided below.

Theoretical. Three areas were drawn upon and integrated for the current project: the Theory of Planned Behavior (TPB), consumer socialization, and parental control and monitoring.

The theory of planned behavior. The Theory of Planned Behavior (Ajzen 1991) has been used extensively in both the investigation of adult and adolescent decision-making. It posits that an individual's attitude, perceived social pressure, and perceived behavioral control toward performing a target behavior predict that individual's intention of performing the target behavior. The individual's intention of performing the target behavior and the individual's perceived behavioral control toward performing the target behavior predict an individual's performance of the target behavior.

Consumer socialization. Several important agents of socialization have been identified in children's acquisition of consumption knowledge and behaviors, including peers, culture, and the mass media. However, the most significant agent of socialization for young consumers is parents. Work on the role of parents in the consumer socialization process has focused on two

typologies: parenting style (Carlson and Grossbart 1988; Carlson, Grossbart, and Stuenkel 1992) and family communication style (Moore and Moschis 1981; Moschis 1985).

Parenting style categorizes parents by how they differ on dimensions of restrictiveness v. permissiveness and warmth v. hostility. Family communication style groups parents by how they differ in terms of socio-oriented (promoting deference to parents) and concept-oriented (promoting the development of a child's own view of world) communication. Both parenting style and family communication style provide useful characterizations of the family, and they have been used extensively in the consumer socialization literature. However, these styles capture only how parents globally orient towards their children and do not capture specific behaviors.

Parental control and monitoring. The literature on parental control and monitoring identifies three core components of specific parental behavior that impact adolescent choice: 1) expectations, 2) monitoring, and 3) inducement/enforcement (Jaccard et al. 2009). *Expectations* are the behavioral standards parents set for their adolescent (i.e., rule-setting). Once expectations are set, parents must observe their adolescent and determine if the adolescent is acting in accord with these expectations. *Monitoring* encompasses the strategies that parents use to learn about their adolescent's activities with respect to target behaviors. The third process, *inducement/enforcement*, refers to the actions (e.g., incentives, punishments, rewards) that parents take to encourage their adolescent to comply with the behavioral expectations.

An integrated model. The current work integrated the parenting literature on the specific actions parents take to influence their children (i.e., expectation, monitoring, and inducement/enforcement behaviors) with more global parenting constructs studied in consumer

socialization (i.e., parenting style and family communication style) and constructs from the TPB to provide a more comprehensive investigation of adolescent decision-making.

Substantive. Over the past three decades, obesity has more than doubled among children and adolescents (National Health and Nutrition Examination Survey 2003). Childhood and adolescent obesity have been linked with an increased risk of serious health conditions in adulthood (such as heart disease, stroke, type 2 diabetes, and osteoporosis), poor self-esteem, and depression (Mayo Clinic 2010). The estimated medical cost of obesity has jumped to \$147 billion per year (up from \$78.5 billion in 1998), and it is likely costs will continue to rise, as studies have shown that 70% of obese adolescents remain obese in adulthood (Finkelstein et al. 2009; Magarey et al. 2003).

Attention to the childhood and adolescent obesity epidemic has been growing in both the popular press and political arena. For example, September 2010 was proclaimed “National Childhood Obesity Awareness Month” by President Obama, buttressing prior White House efforts to call attention to the issue, such as the creation of a Task Force on Childhood Obesity and Michelle Obama’s “Let’s Move” initiative (Obama 2010). While Mrs. Obama’s efforts focus on a myriad of tactics to address childhood and adolescent obesity, one of the main pillars of her campaign is a focus on parents.

Numerous studies suggest that parental actions are an important determinant of childhood and adolescent obesity. For example, Epstein et al. (1994) summarize the research supporting parental involvement as an important component of weight regulation interventions for children and adolescents. However, while it is clear that parents have an impact on childhood and adolescent obesity, recent work has suggested that the role of parental involvement in the food choices of adolescents is still not well understood (Elbel, Gyamfi, and Kersh forthcoming). The

current research examined four classes of predictors to further investigate this complex issue: individual-level predictors from the TPB, parenting practices (i.e., expectation, monitoring, and inducement/enforcement behaviors), parenting styles, and family communication styles. Two types of food choices were examined: the consumption of items linked to a healthy weight (i.e., fruits and vegetables) and the consumption of items linked to unhealthy weight (i.e., soda and fast food).

The specific focus of this work was on adolescents, as parenting is especially important during this stage of life. While adolescence is a time when individuals start to make choices on their own, parents are one of the most important sources of influence on the choices adolescents make (Jaccard et al. 2009). During this time, parents are an important agent of socialization for their adolescents that help determine the choices their adolescents will make subsequently in their lives (Steinberg 2001).

Methodological. “[I]t is not possible, in principle, to do “good” (that is, methodologically sound) research...[A]ll research strategies and methods are...flawed, often with their very strengths in regard to one [area]...serious weakness in regard to other[s]” (McGrath 1982). Since all research strategies have inherent flaws, the triangulation of methods is important. Approaching the same research question from multiple perspectives and looking for convergence in results are perhaps the best ways to resolve the “strategy lament.” It is also important to recognize that some research strategies are better suited for some research questions than others. Researchers should strive to select the strategies that best meet the needs of their research.

The current research sought to expand upon existing theories to examine adolescent food decision-making. There were two main objectives: 1) to identify the specific expectation,

monitoring, and inducement/enforcement behaviors parents perform with regard to adolescent food choice and 2) to develop and evaluate a structural model of adolescent food choice which integrates the TPB with these specific parenting behaviors, parenting style, and family communication style.

These two objectives were approached using two studies. The first study identified the specific expectation, monitoring, and inducement/enforcement behaviors that parents from the population under study performed with regard to food choice. The main goal of the study was to gain a rich understanding of these parenting practices from both normal and overweight parents and adolescents. Therefore, a qualitative approach was appropriate. Study 1 consisted of open-ended interviews with parent-adolescent dyads using a 2x2 design (overweight v. normal weight and parent v. adolescent) to obtain a sample of both over- and normal weight participants.

In the second study, a structural model of adolescent food choice was developed and evaluated. The model integrated the TPB with the parenting behaviors identified in the interviews and more general parenting socialization styles. Information was used from Study 1 to create measures of parental expectation, monitoring, and inducement/enforcement behaviors. For the TPB constructs and more general parenting socialization styles, existing measures were adapted for the context of adolescent food choice. Questionnaire methods were used to collect data, and the model was assessed using structural equations modeling (SEM) techniques.

1.2 Dissertation Outline

The remainder of the dissertation is organized as follows. Chapter 2 provides an overview of how adolescent food decision-making has been examined in prior consumer research. Chapter 3 discusses the constructs from the TPB and their role in adolescent food choice. Chapter 4 introduces the aspects of parenting focused on in the consumer socialization literature (parenting

style and family communication style). Chapter 5 discusses specific parenting practices (i.e., expectation, monitoring, and inducement/enforcement behaviors) from the literature on parental control and monitoring. Chapter 6 summarizes chapters 2-5 and provides an overview of the research objectives for the studies. Chapter 7 outlines the sample, procedure, and results of Study 1 and concludes with a discussion of the findings. Chapter 8 describes the development of the structural model tested in Study 2. Chapter 9 outlines the sample, procedure, measures, and results of Study 2 and concludes with discussion. Chapter 10 provides a general discussion of the studies and their limitations and suggests future research.

CHAPTER 2 – ADOLESCENT FOOD CHOICE IN CONSUMER BEHAVIOR

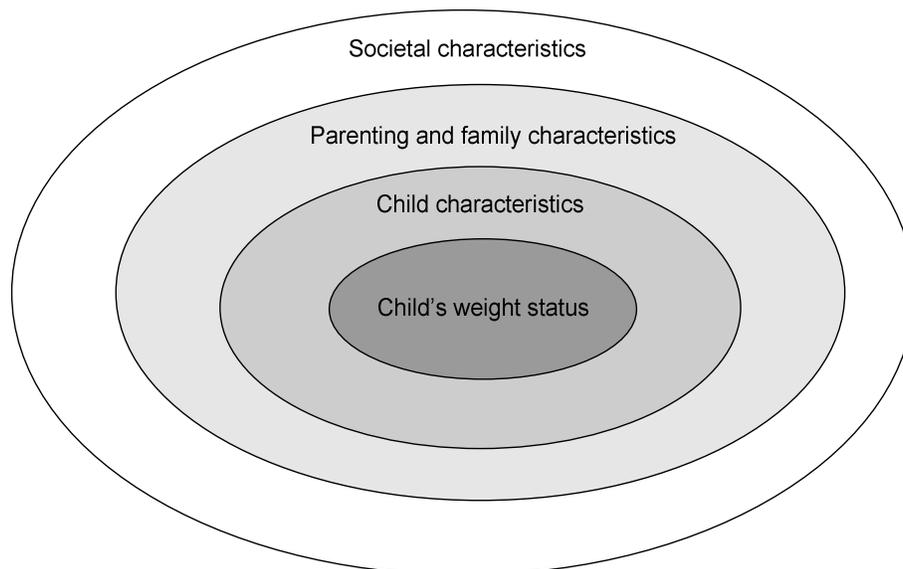
Children and adolescents have long been a group of interest to consumer behavior researchers. Work investigating children's consumption-related behavior dates back to the 1950s and covers a host of topics ranging from their brand loyalty to their understanding of the marketplace to their influence on family purchases (John 1999). More recently, the transformative consumer research (TCR) movement has influenced researchers in marketing to turn their attention to issues of adolescent overconsumption. Formed in 2005 by Association for Consumer Research President David Mick, the TCR movement seeks to "encourage, support, and publicize research that benefits consumer welfare and quality of life for all beings affected by consumption across the world" (Mick 2005). In the last few years, the TCR movement has gained substantial interest within consumer behavior research.

One of the main focuses of consumer behavior researchers in the area of childhood overconsumption has been the impact of advertising. For example, a 2007 special issue of the *Journal of Public Policy & Marketing* focusing on childhood obesity included articles examining the impact of the 4 Ps (Goldberg and Gunasti), television advertisements (Desrochers and Holt), and online advertisements (Moore and Rideout) on childhood obesity. However, this dominant focus on the influence of advertising neglects other important predictors of children's behavior. While advertising impacts children's and adolescents' food choices, its importance may be overemphasized. A comprehensive review (Hastings et al. 2003) of research on the effects of food promotion to children found only "modest evidence" of advertising's impact on children's consumption behavior. For example, Bolton (1983) found that television food advertising accounted for only 2% of the variance in children's snacking behavior and had no direct effect on caloric intake. These findings suggest that studying the impact of advertising on food choices

is not sufficient. Work investigating adolescent food choice in the consumer behavior literature would benefit from examining additional predictors.

Human development researchers Davidson and Birch (2001) suggest an Ecological Systems Theory (EST) of childhood weight status with three classes of influencers: 1) societal characteristics, 2) parenting and family characteristics, and 3) child characteristics. The EST model highlights the importance of considering the context in which an individual exists in order to understand a characteristic of that individual. In the case of childhood obesity, a child is affected by individual characteristics, which, in turn, are affected by parenting and family characteristics, which, in turn, are affected by societal characteristics. In other words, societal characteristics have the most distal impact on a child's weight status, parenting and family variables having a more proximal impact, and the individual characteristics of the child have the most proximal (see Figure 1).

Figure 1 – An Ecological Systems Theory of Children's Weight Status



Most of the work in consumer behavior examining childhood overconsumption has focused on advertising (i.e., a societal characteristic). While advertising may have an important impact on the context in which a child evolves, there are more important proximal predictors of obesity (i.e., family and individual characteristics) that are worthy of consumer researchers' attention.

In his 1995 article discussing approaches to social change, Goldberg makes a distinction between “downstream” (i.e., working within the current system) and “upstream” (i.e., changing the current system) approaches. Much of the work on the impact of advertising on childhood obesity seeks to highlight policy issues with an eye towards regulation. This is consistent with an “upstream” goal of changing the system. The following work sought to work within the current system and examined “downstream” variables more amenable to change. Specifically, a model of adolescent food choice was built focusing on its most proximal predictors: parenting and family characteristics and individual-level characteristics. Parenting and family characteristics were examined using global styles from the consumer socialization literature (i.e., parenting style, and family communication style) and specific parenting practices from the parenting literature. Individual-level characteristics were examined using constructs from the Theory of Planned Behavior.

CHAPTER 3 – THE THEORY OF PLANNED BEHAVIOR

3.1 Overview

The Theory of Reasoned Action (TRA; Ajzen and Fishbein 1980) is a theory of decision-making that suggests attitudes and perceived social pressure toward a behavior predict an individual's intentions towards that behavior, which, in turn, predict the behavior itself. The theory has been used successfully to predict a wide range of human behaviors. The Theory of Planned Behavior (TPB; Ajzen 1991) is an extension of the model that incorporates the idea of perceived behavioral control as both a predictor of intention and a direct predictor of behavior (see Figure 2).

3.2 The Principle of Compatibility

Fishbein and Ajzen (2010) cite defining a behavior of interest as a critical step in predicting and understanding human behavior. Since behaviors are observable events taking place under specific conditions, they should be defined clearly. There are four major components of behavior to consider: the action that is being performed, the target at which the action is directed, the context in which the action is performed, and the time at which the action is performed. For example, exercise behavior may be defined as exercising (action) on the treadmill (target) at the gym (context) within the past week (time). The same degree of specificity used to define the behavior should be applied to all constructs in the TPB (i.e., attitude, perceived social pressure, and perceived behavioral control must all be measured with respect to completing the action towards the target within the specified context and time). Defining all constructs at the same level of specificity satisfies the “principle of compatibility,” or idea that all measures in the model must be compatible with the defined behavior to facilitate predictive validity (Fishbein and Ajzen 1980).

3.3 Model Components

There are five major components of the TPB: behavior, intention, attitude, perceived social pressure, and perceived behavioral control. Each is outlined below.

Behavior. Behavior is the dependent variable in the model and refers to the action the researcher is attempting to predict.

Intention. Intention refers to the extent to which it is an individual's objective or purpose to perform the behavior (i.e., the extent to which the individual plans to engage in the behavior). Intention is thought to directly impact behavior. Attitude, perceived social pressure, and perceived behavioral control are thought to impact behavior indirectly through intention.

Attitude. Attitude refers to the valence of the individual's evaluation of performing a behavior (i.e., how favorably or unfavorably an individual evaluates performing the behavior). Attitude is thought to impact intention directly and to impact behavior indirectly through intention.

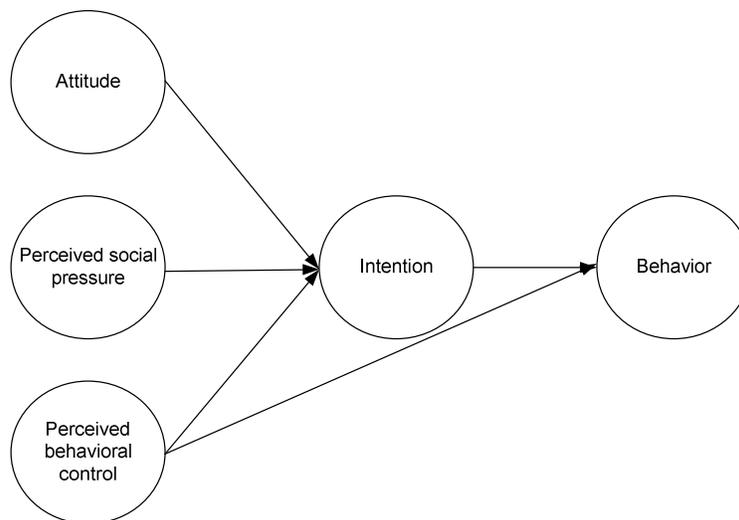
Perceived social pressure. The TRA and TPB both include a "subjective norm" construct as a gauge of social pressure (Ajzen 1991; Ajzen and Fishbein 1980). However, subjective norms only capture what an individual believes important others want him/her to do. They do not capture what important others do themselves. More recent theoretical frameworks have included both of these ideas in the form of injunctive and descriptive norms (Fishbein and Ajzen 2010).

Injunctive norms refer to the degree of external pressure to perform the behavior (i.e., how much the individual perceives important others to want him/her to perform the behavior). Descriptive norms refer to the frequency with which the individual believes the behavior is performed by important others (i.e., how often important others perform the behavior). Within

the theoretical framework of the TPB, injunctive and descriptive norms are combined to create an overall measure of perceived social pressure. Perceived social pressure is thought to impact intention directly and to impact behavior indirectly through intention.

Perceived behavioral control. Perceived behavioral control refers to the extent to which the individual believes s/he has control over the factors that facilitate or inhibit the performance of the behavior (i.e., how much the individual feels s/he has control over whether the behavior is performed). Perceived behavioral control is thought to directly impact both intention and behavior.

Figure 2 – The Theory of Planned Behavior



3.4 The Theory of Planned Behavior and Adolescent Food Choice

The TPB has been used extensively in the prediction of adolescent food choice. The theory has been used to examine both “healthy” (e.g., vegetables) and “unhealthy” (e.g., high fat foods) choices. Backman et al. (2002) surveyed adolescents and found positive TPB predictors (i.e., attitude, perceived social pressure, perceived behavioral control, and intention) towards healthful dietary behaviors had a negative impact on total calories consumed and percent calories from fat

and a positive impact on intake of fruit and vegetable servings. Berg, Jonsson, and Conner (2000) found the TPB constructs to be successful predictors of adolescents' intent to consume milk and high fiber bread. Dennison and Shepherd (1995) showed an adolescent's attitude and perceived behavioral control to be strong predictors of intention to eat chips, chocolate and sweets, and fruit. TPB predictors towards drinking non-diet soda have been shown to have a positive impact on non-diet soda consumption among adolescents (Kassem and Lee 2004; Kassem et al. 2003).

3.5 Limitations

While the TPB predicts behavior through perceived behavioral control and intention (which is predicted by attitudes, perceived social pressure, and perceived behavioral control), there are many other factors which may influence behavior. For example, when examining the food choices of adolescents, it may be important to consider both the adolescent's perceptions of social pressure, as well as social factors existing outside of the adolescent that may impact adolescent's choices, such as parental behaviors. The TPB posits the effects of such factors are mediated by TPB constructs and have only an indirect impact on adolescent behavior through their effects on attitude, perceived social pressure, and perceived behavioral control (which impact intention, which impacts behavior).

Another possibility is that the TPB may not tell the whole story. Prior work has suggested that attitudes, perceived social pressure, and perceived behavioral control account for 40%-60% of the variance in intentions, and intentions explain 20%-40% of the variance in behavior (Rivis and Sheeran 2003). Additionally, many studies attempting to predict food choice have shown large proportions of variance to be unexplained by the variables included in the TPB alone (Lein, Lytle, and Komro 2002). It is possible that other factors (such as parenting) have a direct impact on an adolescent's choices beyond their indirect effects through variables included in the TPB.

CHAPTER 4 – CONSUMER SOCIALIZATION

Consumer socialization has been defined as the “processes by which young people acquire skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace” (Ward 1974, 2). These processes have been studied extensively in consumer behavior. A review of consumer socialization work by Deborah Roedder John (1999) mentions several socialization influences, such as peers, culture, and the mass media, but cites one of the most important sources of influence as parents. Work examining the role of parents in consumer socialization has focused on two ideas: parenting style and family communication style.

4.1 Parenting Style

Research on the socialization of children (Baumrind 1971; Maccoby and Martin 1983) has identified two dominant dimensions on which parents differ in terms of socialization style – restrictive v. permissive and warm v. hostile. These dimensions have been combined to create an orthogonal structure indicating four types of parental style: authoritarian, authoritative, indulgent, and neglectful.

Authoritarian parents are restrictive and hostile. They believe children have few rights but the same responsibilities as adults. Authoritarian parents strictly enforce rules and expect unquestioned obedience (Baumrind 1980). Authoritative parents are restrictive and warm. They view children as having balanced rights and responsibilities. Authoritative parents tend to encourage autonomy but expect adherence to the rules and will interfere when they feel discipline is needed (Baumrind 1968, 1978). Indulgent parents are permissive and warm. They grant children the rights, but not the responsibilities, of adults. Indulgent parents are warm and supportive of their children and do not engage in disciplinary action (Baumrind 1978, 1980). Finally, neglectful parents are permissive and hostile. They perceive their children as

autonomous and capable of meeting their own needs. Neglectful parents do not attempt to maintain control over their children and minimize contact with them (Baumrind 1968).

Some research has applied these typologies of parenting styles to detect their effects on children's eating behavior. Indulgent food-related parenting boils down to "letting the child eat what he wants" (Nicklas et al. 2001). Fryer et al. (1971) found permissive a style to be linked to a lower intake of all nutrients except fat and that children with diets of poor nutritional quality had parents with more permissive attitudes toward their children's eating behaviors.

Authoritarian parents attempt to control the child's food intake and eating practices through commands and coercion (e.g., using food to punish, prompting children to eat when they are not hungry). Authoritarian parenting has been related to lower children's consumption of fruit, juice, and vegetables (Cullen et al. 2001) and has been found to influence children's sensitivity to energy density and meal size (Birch et al. 1987). A study by Rhee et al. (2006) found children of authoritarian mothers to have the highest risk of obesity compared with mother's that were authoritative, permissive, or neglectful.

Authoritative parents use questions, negotiations, and reasoning to influence a child's behavior. For example, authoritative parents might ask the child to make food decisions or explain the health benefits of foods. Berge et al. (2010) suggest an authoritative parenting style may play a protective role against adolescent overweight. Children of authoritative parents have been shown to consume significantly more fruit than children of other types of parents (Kremers et al. 2003). Authoritative parenting has also been linked to increased consumption of dairy and vegetables (Patrick et al. 2005).

In general, the findings on parenting style suggest that, when parental control is applied in a general atmosphere of involvement and parental warmth (i.e., an authoritative style), it might lead to

positive effects, whereas the same control may lead to adverse effects in a more hostile (i.e., authoritarian) atmosphere.

4.2 Family Communication Style

Moore and Moschis (1981) examine the role of family communication in consumer socialization. They adopt a structure from McLeod and Chaffee (1972) which uses two dimensions of communication – socio-oriented and concept-oriented – to produce a typology of four family communication styles. Socio-oriented communication focuses on promoting harmonious, pleasant interactions within the home and focuses on deference to those ideas. Concept-oriented communication focuses on encouraging children to develop their own views about the world, which may include exposure to controversy.

Families exhibiting both low socio- and concept-oriented communication are categorized as demonstrating a *laissez faire* communication style. In this style, there is little communication between parents and their children. Protective communication style families have high socio-oriented communication with low concept-oriented communication. Social harmony and obedience are highly stressed. Families with low socio-oriented communication and high concept-oriented communication are categorized as pluralistic. Children are encouraged to communicate their ideas without an insistence on obedience to authority. Finally, the consensual communication style families have high degrees of both socio- and concept-oriented communication and encourage open communication that does not disrupt the harmony of the family.

Although little work has examined the relationship between family communication style and food consumption, general research on family communication style has suggested that the emphasis of concept-oriented communication leads to better outcomes for children and

adolescents. For example, children from laissez-faire and protective homes (i.e., those with low levels of concept-oriented communication) display lower levels of cognitive differentiation, political knowledge, and news reading than children from pluralistic and consensual families (McLeod and Chaffee 1972). Adolescents from homes with pluralistic communication styles have greater consumer affairs knowledge and are more likely to engage in socially desirable consumption activities (such as reading package labels) than adolescents from other family communication environments (Moore and Moschis 1981). Parents' concept-oriented communication style has been positively related to adolescent's use of deliberate, well-informed decision-making styles (Kim, Lee, and Tomiuk 2009).

4.3 Limitations

The two socialization styles (i.e., parenting style and family communication style) typically studied in the consumer socialization literature can provide useful typologies of parents. However, these styles only represent parents' general orientation toward a child. When examining the topic of childhood and adolescent obesity, there is often an eye toward intervention. The general attitudes parents have toward the children may be difficult to change, but recommendations on specific actions for parents to take are more feasible. Therefore, it is important to examine how specific parenting practices can impact adolescents' choices.

CHAPTER 5 – PARENTAL CONTROL AND MONITORING

Parental actions have been demonstrated as an important determinant of childhood and adolescent obesity. For example, Epstein et al. (1994) summarize the research supporting parental involvement as an important component of weight regulation interventions for children and adolescents. Parents are effective change agents because of their ability to present information to fit the life circumstances and social contexts of their children. Parents can also affect aspects of the child's life that are beyond the reach of schools or clinics, such as weekend, after school, and nighttime activities (Jaccard et al. 2002).

The literature on parental control and monitoring identifies three main types of active parenting practices: 1) expectation, 2) monitoring, and 3) inducement/enforcement behaviors (Jaccard et al. 2009). *Expectations* are the behavioral standards parents set for their adolescent (i.e., rule-setting). Once expectations are set, parents must observe their adolescent and determine if the adolescent is acting in accord with these expectations. *Monitoring* encompasses the strategies that parents use to learn about their adolescent's activities with respect to target behaviors. The third process, *inducement/enforcement*, refers to the actions (e.g., incentives, punishments, rewards) that parents take to encourage their adolescent to comply with the behavioral expectations.

5.1 Expectations

The literature on parental control and monitoring refers to the “rules, regulations, and restrictions that parents have for their children” as behavioral control (Smetana and Daddis 2002, 563). Most studies examining parents' behavioral control over their adolescents in terms of health focus on risky behaviors, such as tobacco use, alcohol use, and unsafe sex. Insufficient

levels of behavioral control have been linked to behavioral problems in adolescents (Barber and Harmon 2002).

The establishment of family food rules has an important influence on both adolescent food choices and their frequency of consumption (De Bourdeaudhuij 1997). Bylund et al. (2010) found both parents' and adolescents' perceptions of rule articulation to be predictive of adolescent compliance. Adolescents' perceptions of their parents' rule articulation was a consistent predictor of adolescent compliance with food rules and parents' perceptions of rule articulation was a consistent predictor of parents' estimates of adolescent compliance with food rules.

At a high level, a rule is "a followable prescription that indicates what behavior is obligated, preferred, or prohibited in a certain contexts" (Shimanoff 1980, 57). But there are many different types of rules. For example, researchers have drawn a distinction between abstinence rules (i.e., a global prohibition of an activity) and contingency rules (i.e., context-bound rules to the appropriateness of an activity; Baxter et al. 2009). One aim of the current research was to identify parents' food-related expectations for adolescents that were relevant to the population under study. Prior studies often ask respondents to evaluate a set of pre-defined expectations (e.g., De Bourdeaudhuij 1997). A problem with this approach is that the particular set of expectations relevant to a given target population may be ignored

5.2 Monitoring

Parental monitoring has been defined as "a set of correlated parenting behaviors involving attention to and tracking of the child's whereabouts, activities, and adaptations" (Dishion and McMahon 1998, 61). Parental monitoring has been linked to several positive adolescent adjustments, such as lower levels of antisocial behavior, substance abuse, and sexual

behavior and enhanced academic achievement and emotional well-being (Barber, Olsen, and Shagle 1994; Brown et al. 1993; Crouter et al. 1990; Hogan and Kitagawa 1985; Sampson and Laub 1994).

Research regarding the role of parental monitoring on adolescents' food-related behaviors has been mixed. Birch, Fisher, and Davison (2003) suggest parental monitoring of specific food intake and restriction are harmful to overweight children, as they show the greatest amount of overeating over time. Kenyon, Fulkerson, and Kaur (2009) find no relationship between parental monitoring and adolescent food hiding, healthy control behaviors, or unhealthy weight control behaviors. Klesges et al. (1991) find parental monitoring to lower the number of non-nutritious foods and total caloric content of children's meals. One possibility is that monitoring can impact different groups in different ways. As with expectations, prior studies on parental monitoring often ask respondents to evaluate a set of pre-defined activities (e.g., Jacobson and Crockett 2000; Kerr and Stattin 2000). The current work sought to identify the monitoring behaviors relevant to the population under study.

5.3 Inducement/enforcement

Inducement/enforcement practices can encompass the ideas of rule sanctioning (i.e., the presence of consequences if a rule is violated) as well as activities that may actively encourage the following of rules. Adolescents' compliance with rules has been positively related to adolescents' perception of strong rule sanctioning in the domains of sexual activity and alcohol use (Baxter et al. 2009).

Some research has examined the role of inducement/enforcement behaviors on food choices. Bylund et al. (2010) found both parents' and adolescents' perceptions of rule sanctioning to be predictive of adolescent compliance. For example, adolescents' perceptions of rule sanctioning

were a predictor of adolescent compliance with food rules and parents' perceptions of rule sanctioning were a consistent predictor of parent's perceptions of adolescent compliance with food rules.

Most studies focusing on the "inducement" (or behaviors to encourage the following of the rules) aspect of inducement/enforcement practices have explored the impact of controlling food intake by rewarding the consumption of "healthy food." These types of practices are commonplace for parents to encourage their children to eat healthier, and studies demonstrate that rewarding the consumption of certain foods results in increased preference for these foods (Birch, Zimmerman, and Hind 1980). However, inducement strategies that restrict children's access to snack foods can make the restricted foods more attractive, as indicated by children's greater selection and intake of restricted than unrestricted foods (Fisher and Birch 1999; Galloway et al. 2005).

As with expectation and monitoring behaviors, it is important to focus on the inducement/enforcement practices relevant to a specific population. Therefore, an aim of the current research was to identify the range of inducement/enforcement activities relevant to the population under study.

5.4 Limitations

Specific parenting actions can have an impact on adolescent choices. However, it is important to remember that these actions take place within a context. While parenting practices represent direct actions parents take in the course of socializing their children, parenting styles are the "constellation of attitudes toward the child that are communicated to the child and create an emotional climate in which the parent's behaviors are expressed" (Darling and Steinberg 1993, 493). In other words, while parenting practices represent the direct actions parents take in hopes of influencing their adolescents, parenting styles can mold the general environment in

which parents' actions take place. Therefore, it is important to examine the moderating role styles may play on the relationship between parenting practices and adolescent outcomes.

CHAPTER 6 – SUMMARY OF LITERATURE AND RESEARCH OBJECTIVES

6.1 Summary of the Literature

Consumer behavior researchers have examined the consumption decisions of children for many years. Recently the transformative consumer research movement has increased interest in research that benefits the consumer welfare of vulnerable groups, such as children. One prominent area of study is that of childhood obesity. However, most research on this topic has examined the impact of advertising (a distal, societal predictor) to the neglect of more proximal predictors, such as individual and family characteristics. The following work seeks to examine adolescent food choice using a “downstream” approach that includes individual-level characteristics from the TPB and family-level characteristics from the consumer socialization (i.e., parenting style and family communication style) and parental control and monitoring (i.e., expectation, monitoring, and inducement/enforcement behaviors) literatures.

While all three theoretical perspectives (i.e., the TPB, consumer socialization, and parental control and monitoring) are useful, each has limitations. The TPB is useful in predicting adolescent food choices, but it neglects possible social determinants of behavior beyond an individual’s perceptions. Global parenting orientations from the consumer socialization literature (such as parenting style and family communication style) capture only the general environment in which parents’ actions take place and cannot be used to provide recommendations for actions parents take in hopes of influencing their adolescents. Specific parenting practices capture the direct methods parents use to influence their children’s choices, but they do not consider the context in which these behaviors take place. Therefore, an integrated approach is necessary to bring these three theoretical perspectives together to create a more comprehensive theory of adolescent choice. This integrated model is developed and discussed in Chapter 8.

6.2 Research Objectives

The current project had two major research objectives.

- 1) To identify the major parenting practices (i.e., expectation, monitoring, and inducement/enforcement behaviors) of parents of adolescents with respect to food choice (Study 1).
- 2) To develop and evaluate a structural model of adolescent food choice integrating constructs from the TPB, the parental behaviors identified in the interviews, and parental socialization styles (Study 2).

Objective 1. While constructs from the TPB and the global parenting styles from the consumer socialization literature are well defined, work on the specific parental expectation, monitoring, and inducement/enforcement behaviors the domain of food choice should identify specific actions that are salient to the population being studied. Therefore, the first major objective of the current project was to investigate parental expectation, monitoring, and inducement/enforcement behaviors with respect to adolescents' food choice for the group under study.

Objective 2. The TPB, parenting styles from the consumer socialization literature, and specific parenting practices from the parental control and monitoring literature are all relevant theoretical lenses through which to examine adolescent decision-making. However, each theory has its limitations, and a more complete model of adolescent choice can be created by combining these different perspectives. Therefore, the second major objective of the current work was to integrate and expand upon existing models of adolescent food choice by combining the TPB with parenting constructs from the consumer socialization and parental control and monitoring literatures.

6.3 Overview of Studies

Study 1. In Study 1, interviews were conducted with both overweight and normal weight parents and adolescents to identify the expectation, monitoring, and inducement/enforcement practices relevant to food choice. Each practice was described and visual representations were presented for the overall patterns of expectation, monitoring, and inducement/enforcement behaviors, as well as the specific forms of each behavior, for both parents and adolescents. These graphs were examined by adolescent weight status to suggest patterns of the impact of parenting practices on adolescent food choice.

Study 2. Study 2 used a survey methodology to test a structural model of food choice integrating the TPB with both parents' and adolescents' perceptions of parenting style, family communication style, and parenting practices. These predictors were examined for their impact on adolescents' consumption of both foods linked to a healthy weight and foods linked to obesity in adolescents.

CHAPTER 7 – STUDY 1

7.1 Overview

The main objective of Study 1 was to identify the major food-related parenting practices (i.e., expectation, monitoring, and inducement/enforcement behaviors) of parents of adolescents with respect to residents of the local region (i.e., the New River Valley). Interviews were conducted with parent-adolescent dyads of both normal weight and overweight parents and adolescents to capture a full spectrum of behaviors. The data collection was completed in Spring 2010¹.

7.2 Sample

A convenience sample of parent-adolescent dyads from the New River Valley was recruited through an e-mail message to Virginia Tech staff members (see Appendix A) and word of mouth. Participants first completed a screening questionnaire (see Appendix B) to determine their eligibility. Individuals were considered eligible for an interview if they identified themselves as the primary food preparer of the household and had at least one adolescent between the ages of 10 and 17.

Twenty parent-adolescent dyads were selected for the study. Selection was based on a screening questionnaire, which included information on both parent and adolescent height and weight. The height and weight information was used to calculate body mass index (BMI), and respondents were partitioned into one of four groups: normal weight parents with normal weight adolescents, overweight parents with overweight adolescents, normal weight parents with overweight adolescents, and overweight parents with normal weight adolescents. Participants in

¹ Financial support was provided by the Fralin Life Science Institute and the Institute for Society, Culture, and Environment.

all four groups were included to obtain a representative sample of parental expectation, monitoring, and inducement/enforcement behaviors across parent and adolescent weight status. Participants were recruited until each group contained a minimum of four parent-adolescent dyads.

7.3 Procedure

Interviews were conducted in participants' homes and lasted approximately one hour. The parent identifying him/herself as the primary food preparer and one adolescent from the home were interviewed separately by trained research assistants. Participants were first introduced to the project and asked to sign a consent form. Three consent forms were obtained per household: the parent's consent for the parent's interview, the parent's consent for the adolescent's interview, and the adolescent's consent for the adolescent's interview (see Appendix C for consent forms). Participants were then asked permission for their interview to be audio recorded. After the interview, families were thanked, provided with a debriefing form (see Appendix D), and compensated \$100 for their participation.

Protocol and training. All interviews were guided by a standard interview protocol, which consisted of the main interview questions and suggested probes and follow-up questions.

Parent protocol. The protocol for the parent interviews included sections on liked and disliked foods, the types of expectations parents set for their adolescents' food choices, the monitoring tactics parents used to learn about their adolescents' food choices, the inducement/enforcement practices parents carried out to encourage adolescent compliance with food choice expectations, food situations parents might face with their adolescents and how they would resolve them, and actions or circumstances parents thought might bring about positive changes in their adolescents' food choices (see Appendix E for the full parent interview

protocol). The focus of the current research was on the parenting practices questions (i.e., expectation, monitoring, and inducements/enforcement behaviors). Future analyses of the interviews may include a more in-depth assessment of food perceptions and choices for parents and their adolescents.

Adolescent protocol. The adolescent interview protocol included sections on liked and disliked foods, the food choice expectations adolescents perceived their parents to have for them, the food choice-related inducement/enforcement behaviors adolescents perceived their parents to practice, and one food situation they might face with their parents and how they would react (see Appendix F for the full adolescent interview protocol). Adolescents were not asked about their parent's monitoring behavior, because they are unlikely to directly observe their parents monitoring their behavior. As in the parent protocol, the current research focused on the parenting practice-related questions.

Interviewer training. Interviewers were recruited from a pool of honors undergraduate students. They attended training sessions in which the interview protocols were explained and clips were played from previous interviews to demonstrate how to incorporate probes and follow-up questions. Research assistants also conducted mock interviews and were provided with feedback by the lead researcher to strengthen their interviewing skills.

Analysis. The interview data was first prepared for examination and then underwent two phases of analysis.

Preparation. All interviews were transcribed by research assistants, stripped of identifying information (e.g., "Bobby" became "Adolescent" within the transcript), and randomized for coding. Parent and adolescent interviews were grouped separately.

The lead researcher identified all material within each transcript relating to participants' expressions of expectation, monitoring, and inducement/enforcement behaviors. Parent transcripts were examined for the expectation, monitoring, and inducement/enforcement behaviors they reported practicing. Adolescent transcripts were examined for the expectation, monitoring, and inducement/enforcement behaviors they reported their parents practicing. Expectations-related material was defined as describing the "behavioral standards parents set for their adolescent." Monitoring-related material was defined as describing the "tactics parents use to determine if their adolescent is complying with expectations." Inducement/enforcement-related material was defined as describing the "actions parents take to encourage compliance with their expectations."

Phase 1. In the first phase of analysis, the lead researcher coded all material related to expectation, monitoring, and inducement/enforcement behaviors for emergent themes derived from the transcript using general practices for qualitative coding (Lindlof and Taylor 2002).

Phase 2. In the second phase of analysis, two trained research assistants were given a codebook describing the themes derived by the lead researcher and provided with examples (see Appendix G). The research assistants then independently coded the expectation, monitoring, and inducement/enforcement material in the parent and adolescent interviews using these guidelines.

Coder training. Coders were recruited from a pool of honors undergraduate students. The coders attended training sessions in which the codebook was explained and mock interview data were presented to demonstrate coding procedures. The research assistants were then given data from two mock interviews (one parent interview and one adolescent interview) with which to practice coding. After the research assistants coded the mock interview data, their codes were

then compared to that of the lead researcher and discussed. The training was complete after the coders were able to reach an inter-rater reliability of 90%.

7.4 Results

Inter-rater reliability. Inter-rater reliability was assessed for the two research assistants coding the transcripts. Only material coded by both research assistants was included in the analysis, and the level of agreement was calculated using Cohen's Kappa. The results of the inter-rater analysis were $Kappa = 0.81$ ($p < 0.01$). A Kappa of 0.80 is considered outstanding (Landis and Koch 1977). All disagreements were resolved through a discussion between the two research assistants and the lead researcher.

Expectation behaviors. Parents and adolescents identified four practices with regard to setting expectations about adolescents' food choices: object-focused rules of restriction, context-focused rules of restriction, object-focused rules of obligation, and context-focused rules of obligation.

Object-focused rules of restriction. Object-focused rules of restriction focused on limitations on or prohibitions against specific foods or beverages. Example: A one soda per day limit.

Context-focused rules of restriction. Context-focused rules of restriction concerned limitations or prohibitions related to general consumption practices or the consumption environment. Example: No eating in front of the television.

Object-focused rules of obligation. Object-focused rules of obligation encompassed specific foods or beverages parents required their adolescent to consume. Example: Vegetables must be eaten twice a day.

Context-focused rules of obligation. Context-focused rules of obligation focused on requirements parents made of their adolescents that concerned general consumption practices or the consumption environment. Example: The family must sit down to eat dinner together.

Monitoring behaviors. Parents reported four types of monitoring practices they used to determine if their adolescent was complying with food-related expectations: communication with adolescents, communication with others, direct observation, and indirect observation.

Communication with adolescents. Communication with adolescents consisted of asking adolescents about their food-related behaviors. Example: Asking the adolescent what s/he had for lunch at school.

Communication with others. Communication with others involved asking others for information about adolescents' food-related behaviors. Example: Asking relatives what the adolescent had to eat while in their care.

Direct observation. Direct observation consisted of parents seeing adolescents' food choice behavior firsthand. Example: Family dinner.

Indirect observation. Indirect observation involved parents engaging in tactics to find indirect evidence of adolescents' food behavior. Example: Checking the adolescent's lunch box after school for uneaten items.

Inducement/enforcement behaviors. Parents reported five strategies they used to encourage adolescents' compliance with food-related rules and expectations: talking, rewarding, controlling, self-learning, and penalties. Adolescents reported the same strategies, with the exception of self-learning.

Talking. Talking involved parents having discussions with adolescents in order to encourage compliance with the food rules. Example: Explaining the reasoning behind a food rule to adolescents.

Rewarding. Rewarding behavior consisted of parents providing adolescents with a desired object after they had complied with expectations. Example: Receiving dessert as a reward for eating vegetables.

Controlling. Controlling behavior involved parents encouraging adolescents to comply with their expectations by only providing them with choices that comply with expectations. Parents talked about controlling the foods that came into the home. Example: If a parent did not want an adolescent to have soda, the parent would simply not buy soda for the house. Adolescents described controlling differently than parents and focused on their parents controlling the location of foods in the home and withholding certain foods. Example: A hidden or forbidden snack drawer.

Self-learning. Self-learning captured the idea of allowing adolescents to learn lessons about food on their own. Parents describing this tactic said, in the long run, they thought it was better for the adolescent to learn a lesson on their own than for the parent to tell them. Example: Allowing adolescents to eat too much and get sick, with the hope that adolescents will learn how to manage their food intake from this experience. Adolescents did not report parents using self-learning as a strategy.

Penalties. Penalties were described as a punishment adolescents would face after breaking a food-related rule. Examples: Having privileges taken away; performing a household chore.

Potential effects of parenting practices on adolescents' weight status. The purpose of Study 2 was to evaluate a conceptual model of adolescent food choice. Of particular interest was how parenting expectation, monitoring, and inducement/enforcement behaviors impacted adolescent food choices that have been linked to obesity in adolescents and adolescent food choices that have been linked to a healthy weight in adolescents. While the main purpose of Study 1 was to identify parenting practices with respect to food choices, the analysis of Study 1's data also provided suggestive findings about the parenting practices reported by two groups: the expectation, monitoring, and inducement/enforcement behaviors reported by the parents of overweight adolescents (regardless of the parent's weight status) and the expectation, monitoring, and inducement/enforcement behaviors overweight adolescents report their parents to practice. As each group had a small sample size (between 7 and 11), it was not appropriate to use formal statistical analysis to examine the data. Rather, the data were examined for visual trends. As an aid in looking for potential patterns in the data, graphs were created for overall expectation, monitoring, and inducement/enforcement behaviors, as well as the specific forms of each behavior for both parents and adolescents. Specifically, one set of graphs were created to examine trends in the data for the parenting practices reported by parents of normal weight and overweight adolescents and one set of graphs were created to examine trends in the data for the perceived parenting practices reported by normal weight and overweight adolescents. The graphs capture the percentage of parents reporting the specified behavior in each group.

Expectations – parents. Overall, more parents of normal weight adolescents reported expectations than parents of overweight adolescents (see Figure 3). Parents of normal weight and overweight adolescents also varied in their reported practice of the types of expectations. More parents of normal weight adolescents reported context-focused rules of restriction and context-

focused rules of obligation than parents of overweight adolescents. More parents of overweight adolescents reported having no rules and object-focused rules of restriction. A similar percentage of parents of normal weight and overweight adolescents reported object-focused rules of obligation. See Figure 4 for the parent expectation graphs.

Figure 3 – Percentage of Parents Reporting Expectation, Monitoring, and Inducement/Enforcement Behaviors by Adolescents' Weight Status

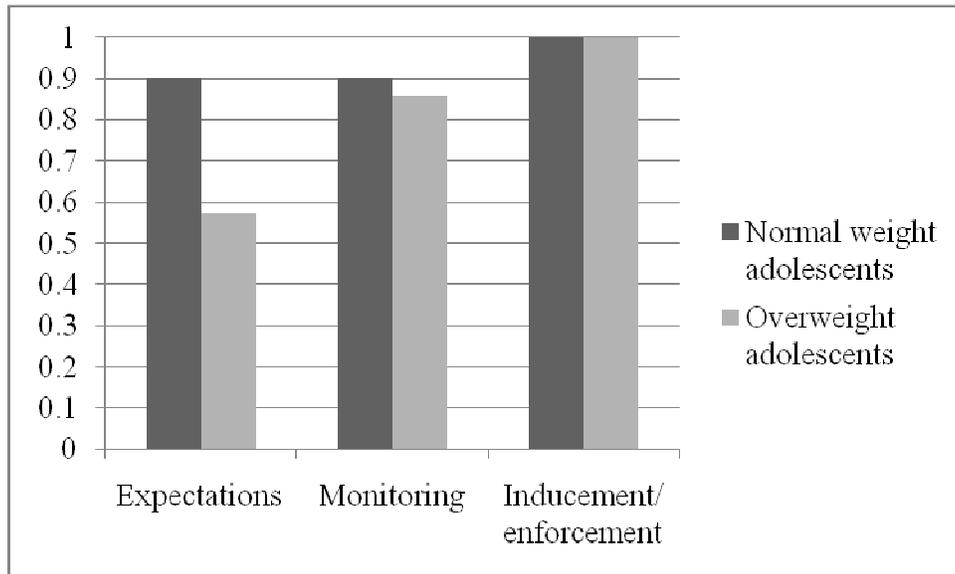
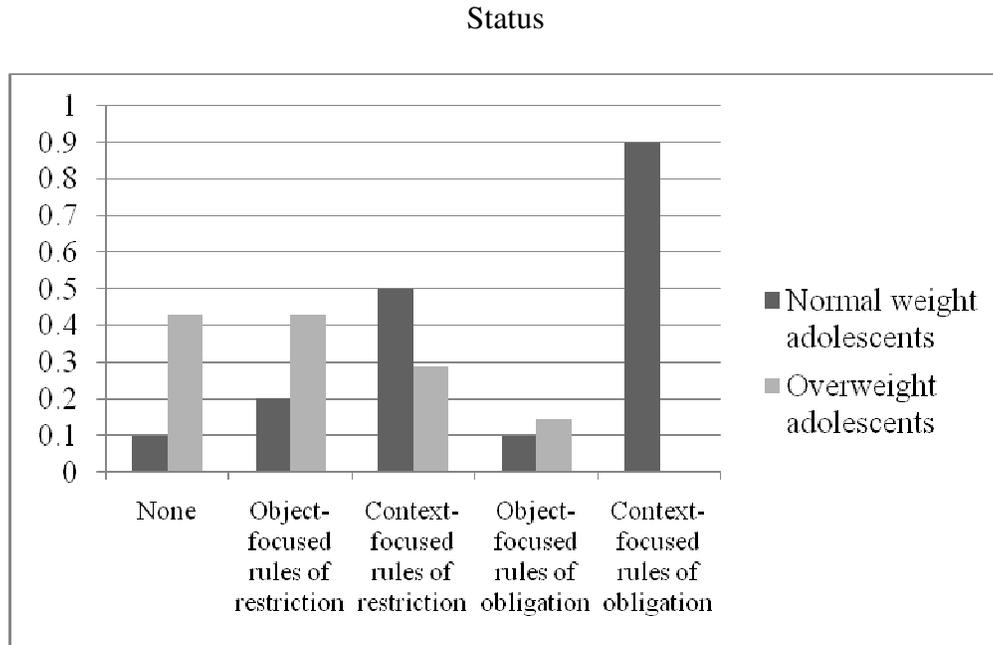
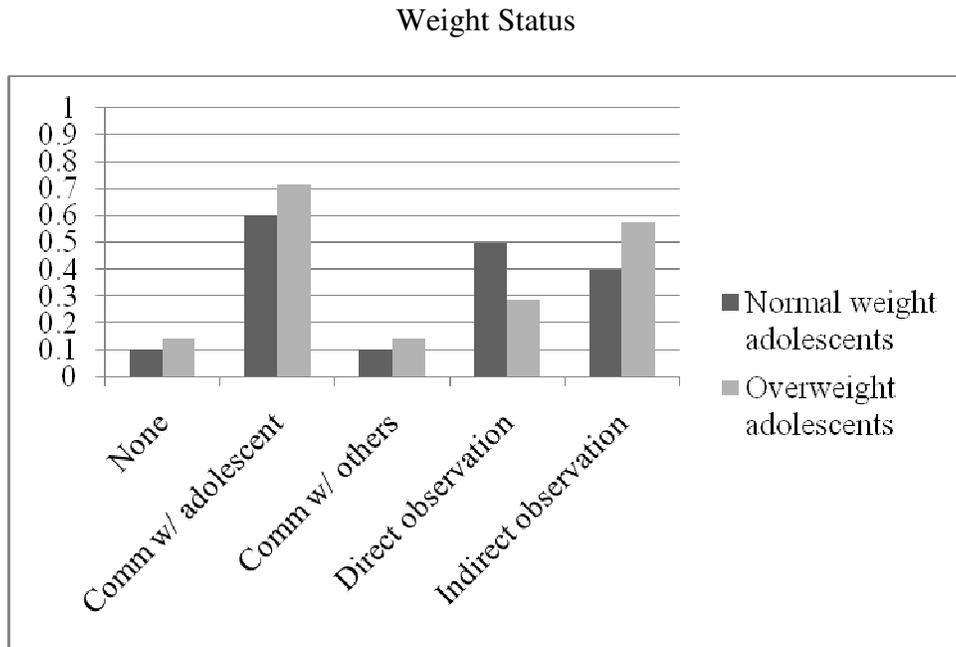


Figure 4 – Percentage of Parents Reporting Expectation Behaviors by Adolescents’ Weight



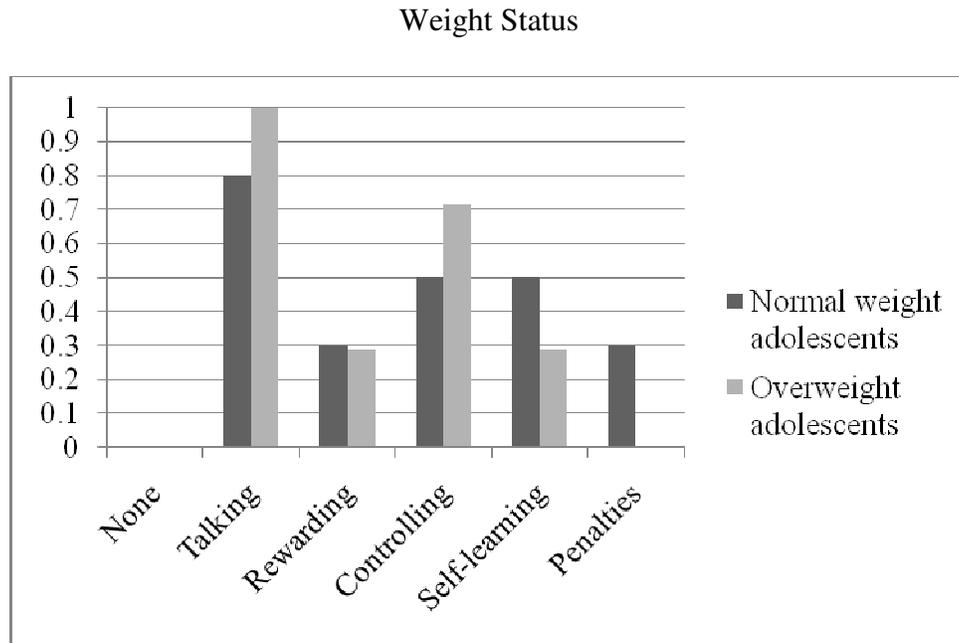
Monitoring – parents. Overall, slightly more parents of normal weight adolescents reported monitoring behaviors than parents of overweight adolescents (see Figure 3). There were also different trends with regard the types of monitoring behaviors reported. More parents of overweight adolescents reported communication with their adolescent and indirect observation than parents of normal weight adolescents. More parents of normal weight adolescents reported direct observation than parents of overweight adolescents. A similar percentage of parents of normal weight and overweight adolescents reported no monitoring behavior and communication with others. See Figure 5 for the parent monitoring graphs.

Figure 5 – Percentage of Parents Reporting Monitoring Behaviors Reported by Adolescents’



Inducement/enforcement – parents. Overall, the same percentage of parents of normal weight adolescents and parents of overweight adolescents reported inducement/enforcement behaviors (see Figure 3). There were, however, differences in the trends that emerged for each specific inducement/enforcement behavior. More parents of normal weight adolescents reported letting adolescents learn on their own and using penalties. More parents of overweight adolescents reported talking and controlling. A similar percentage of parents of normal weight and overweight adolescents reported rewarding. No parents reported engaging in no inducement/enforcement behaviors. See Figure 6 for the parent inducement/enforcement graphs.

Figure 6 – Percentage of Parents Reporting Inducement/Enforcement Behaviors by Adolescents’



Expectations – adolescents. Overall, more overweight adolescents reported expectations set by their parents than normal weight adolescents (see Figure 7). The type of expectations the adolescents reported for their parents also varied. More normal weight adolescents reported no rules, object-focused rules of obligation, and context-focused rules of obligation than overweight adolescents. More overweight adolescents reported object-focused rules of restriction than normal weight adolescents. A similar percentage of normal weight and overweight adolescents reported context-focused rules of restriction. See Figure 8 for the adolescent expectations graphs.

Figure 7 – Percentage of Adolescents Reporting Expectation and Inducement/Enforcement

Behaviors by Adolescents' Weight Status

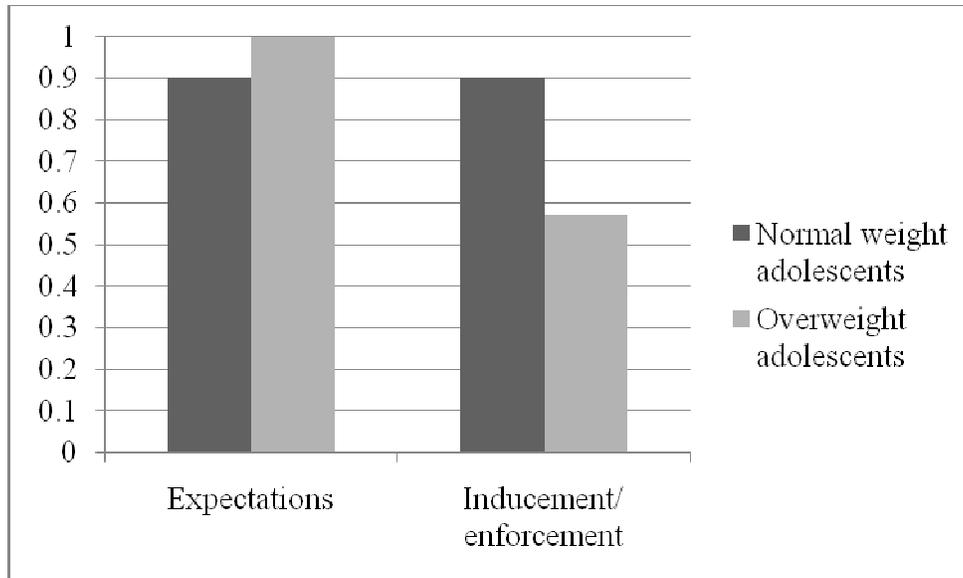
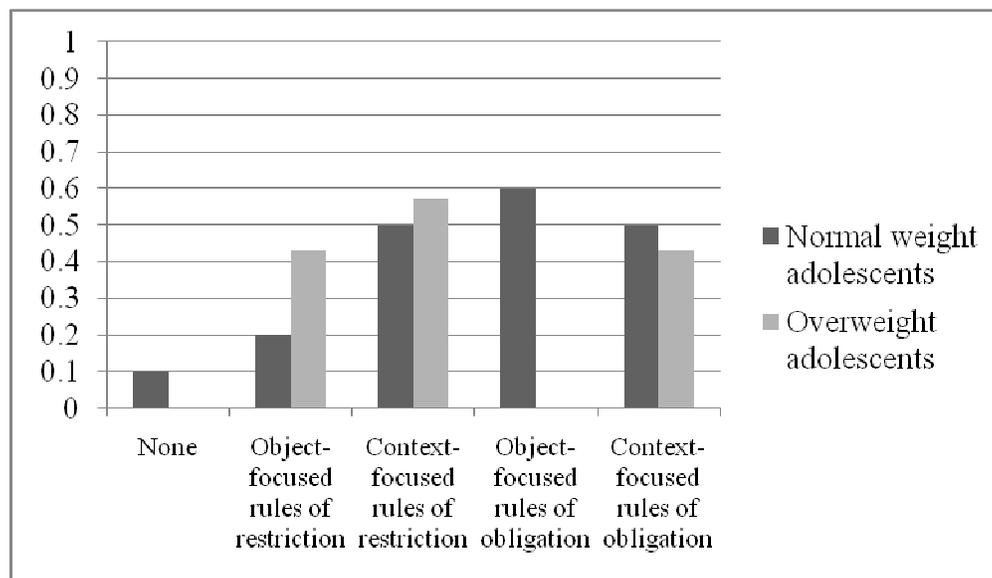


Figure 8 – Percentage of Adolescents Reporting Expectations Behaviors by Adolescents' Weight

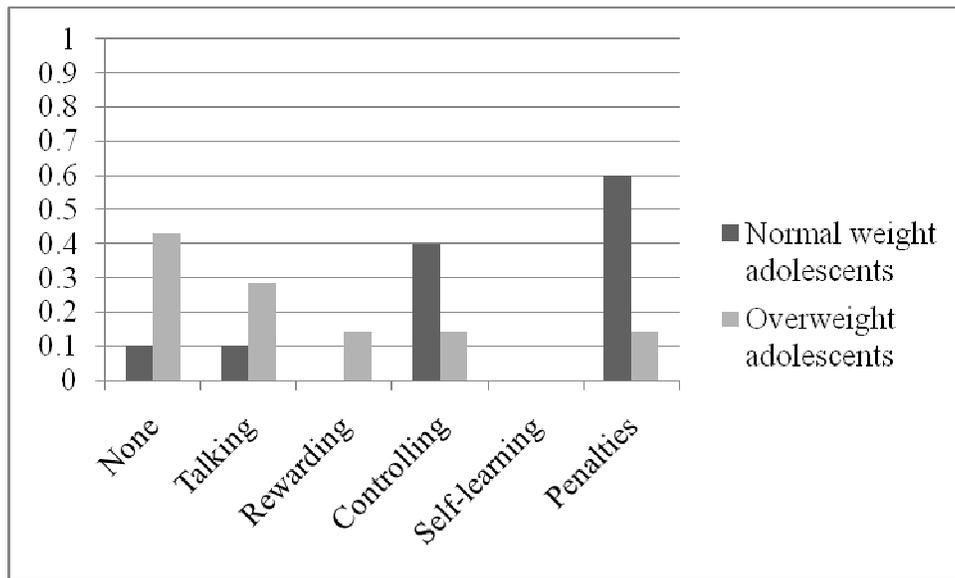
Status



Inducement/enforcement – adolescents. More normal weight adolescents reported their parents engaging in inducement/enforcement behaviors than overweight adolescents (see Figure

7). The type of inducement/enforcement behaviors the adolescents reported their parents practicing also varied. More overweight adolescents reported no inducements/enforcements, talking, and rewarding than normal weight adolescents. More normal weight adolescents reported controlling and penalties than overweight adolescents. Neither normal weight nor overweight adolescents reported any instances of allowing the adolescent to learn on their own. See Figure 9 for the adolescent inducement/enforcement graphs.

Figure 9 – Percentage of Adolescents Reporting Inducement/Enforcement Behaviors by Adolescents’ Weight Status



Parent-adolescent convergence. Convergence between parents and adolescents for the expectation and enforcement/inducement practices were calculated using Cohen’s Kappa. The results of the inter-rater analysis were Kappa = 0.25 ($p < 0.01$) for the expectation behaviors and Kappa = 0.11 ($p = 0.06$) for the inducement/enforcement behaviors. Kappas under 0.40 are considered poor (Landis and Koch 1977). This suggests that parents and adolescents may differ in their perceptions of parental expectation, monitoring, and inducement/enforcement behaviors.

This find is consistent with previous literature. For example, Bylund et al. 2010 found discrepancies in the nutrition-related rules reported by parents and adolescents.

7.5 Discussion

The overarching goal of the current research was the development and evaluation of a model of adolescent food choice that integrated the TPB, general parenting socialization styles, and specific parenting practices. While constructs from the TPB and general parenting styles from the consumer socialization literature (i.e., parenting style and family communication style) are well-defined, there is less work identifying the specific actions parents take in the course of socializing their children. The objective of Study 1 was to elicit the expectation, monitoring, and inducement/enforcement behaviors parents practice with respect to their adolescents' food choices relevant to the population under study. As a secondary point, these practices were examined for trends regarding adolescents' weight status to help inform the structural model to be tested in Study 2.

Identified behaviors. Four types of expectation behaviors were identified: object-focused rules of restriction, context-focused rules of restriction, object-focused rules of obligation, and context-focused rules of obligation. Monitoring behaviors included communication with adolescents, communication with others, direct observation, and indirect observation. There were five inducement/enforcement behaviors elicited: talking, rewarding, controlling, self-learning, and penalties.

Trends in practices with regard to weight status. A higher percentage of parents of normal weight adolescents reported having expectations than parents over overweight adolescents; however, a higher percentage of overweight adolescents reported their parents having expectations than normal weight adolescents. A slightly higher percentage of parents of

normal weight adolescents reported monitoring behaviors than parents of overweight adolescents. The same percentage of parents of normal weight adolescents and parents of overweight adolescents reported practicing inducement/enforcement behaviors; however, a higher percentage of normal weight adolescents reported inducement/enforcement behaviors than overweight adolescents. These discrepancies between parent- and adolescent-reported parenting practices are consistent with previous literature (e.g., Bylund et al. 2010). The nature of these disagreements was examined more thoroughly in Study 2 by creating a model which included both parent and adolescent perceptions of parenting constructs to determine which was more predictive of adolescent behavior.

Exploratory trend analyses also suggested different types of expectation, monitoring, and inducement/enforcement behaviors may differentially impact adolescents' weight status. However, it is unclear whether these specific types of each behavior are conceptually distinct. The expectation, monitoring, and inducement/enforcement sub-behaviors identified in Study 1 were all elicited with respect to expectation, monitoring, or inducement enforcement behavior. This suggests each type of behavior is reflective of its larger behavioral construct. Therefore, in the model development, the larger concepts of parental expectations, monitoring, and inducement/enforcement behaviors received the focus. In Study 2, the specific practices identified for each behavior were used to form the measures of expectation, monitoring, and inducement/enforcement, and exploratory factor analyses were undertaken to examine each construct's dimensionality.

CHAPTER 8 – MODEL DEVELOPMENT

The existing literature and the information gathered in Study 1 were used to develop a structural model of adolescent food choice. The model included four main classes of predictors (predictors from the TPB, parenting practices, parenting style, and family communication style) and two main classes of dependent variables (foods linked to a healthy weight in adolescents and foods linked to obesity in adolescents).

8.1 Predictor Variables

The theory of planned behavior. The model included the four predictors from the TPB: attitude, perceived social pressure, perceived behavioral control, and intention.

Consumer socialization. Two types of parenting variables were examined from the literature on consumer socialization: parenting style and family communication style.

Parenting style. Parenting styles were represented in the model by care (i.e., an indicator of warmth v. hostility) and control (i.e., an indicator of restrictiveness v. permissiveness).

Family communication style. Family communication styles were represented in the model by concept-oriented communication (i.e., an indicator of parents' propensity to communicate in way which encourages adolescents to form their own views about the world) and socio-oriented communication (i.e., an indicator of parents' propensity to communicate in way which promotes deference to authority).

Parental control and monitoring. The model included the three parenting practices identified by the literature on parental control and monitoring: expectation, monitoring, and inducement/enforcement behaviors. Practices were represented in the model using the specific actions identified in Study 1. Expectation behaviors included object-focused rules of restriction, context-focused rules of restriction, object-focused rules of obligation, and context-focused rules

of obligation. Monitoring behaviors included communication with adolescents, communication with others, direct observation, and indirect observation. Inducement/enforcement behaviors included talking, rewarding, controlling, self-learning, and penalty behaviors.

8.2 Dependent Variables

The predictor variables were examined with respect to their impact on two categories of adolescent food choices: foods linked to a healthy weight in adolescents and foods linked to obesity in adolescents.

Foods linked to a healthy weight in adolescents. Adolescents' frequency of consumption of fruits and vegetables were selected as target foods because of their link to a healthy weight in adolescents. Fruits and vegetables provide satiation but are low in calories and may serve as a replacement for energy-dense foods. Several studies have shown the consumption of fruits and vegetables in adolescents to be inversely related to BMI (Bernard et al. 1995; Field et al. 2003; Kelishadi et al. 2003; Lin and Morrison 2002; Neumark-Sztainer et al. 1996). In a 2001 clinical trial, Epstein et al. found an intervention message targeted at increasing fruit and vegetable consumption to be more effective at helping adolescents maintain a healthy weight than a message targeted at decreasing intake of high-fat and high-sugar foods.

Foods linked to obesity in adolescents. Adolescents' frequency of consumption of non-diet soda and fast food were selected as target foods because of their link to obesity in adolescents. Studies have shown the intake of soft drinks to be positively associated with BMI in adolescents (Phillips et al. 2004; Tam et al. 2006). Ludwig, Peterson, and Gortmaker (2001) estimated a child's odds of becoming obese to increase 1.6 times for each can of soft drink consumed per day. Children's consumption of fast food has also been shown to have an adverse

effect on dietary quality (e.g., higher intakes of fat and sugar), which can increase the risk of obesity (Bowman et al. 2004; French et al. 2001; Gillis and Bar-Or 2003; Paeratakul et al. 2003).

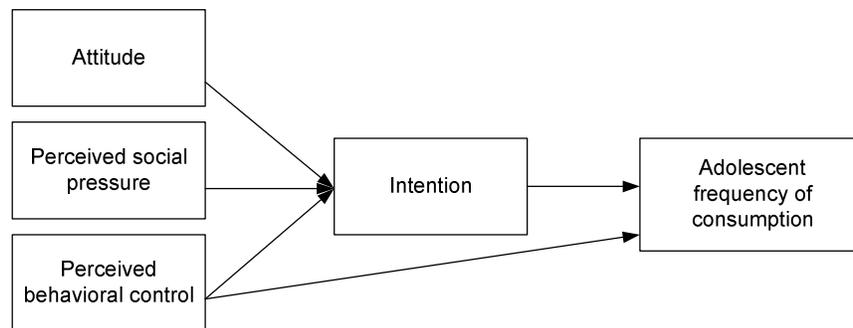
8.3 Model

The model of adolescent food choice was derived by combining hypothesized relationships from the TPB with hypothesized relationships from the literatures on consumer socialization and parental control and monitoring. To develop the full model, adolescent food choice was first considered from a TPB perspective, then from a parenting perspective combining parenting variables from both the literature on consumer socialization and the literature on parental control and monitoring, and, finally, from a fully integrated perspective.

The theory of planned behavior. As stated in Chapter 3, the TPB posits that an individual's attitude, perceived social pressure, and perceived behavioral control toward performing a target behavior predict that individual's intention of performing the target behavior. The individual's intention of performing the target behavior and the individual's perceived behavioral control toward performing the target behavior predict an individual's performance of the target behavior.

Prior work using the TPB to examine adolescent food choice (e.g., Backman et al. 2002; Berg, Jonsson, and Conner 2000; Dennison and Shepherd 1995; Kassem and Lee 2004; Kassem et al. 2003) suggests that attitude, perceived social pressure, and perceived behavioral control toward the consumption of foods linked to a healthy weight (obesity) will have positive impacts on intention to consume foods linked to a healthy weight (obesity). Intention and perceived behavioral control toward consumption of foods linked to a healthy weight (obesity) will have positive impacts on adolescent consumption of foods linked to a healthy weight (obesity). A model representing these relationships is pictured in Figure 10.

Figure 10 – A of Model of Adolescent Food Choice as Predicted by the Theory of Planned Behavior



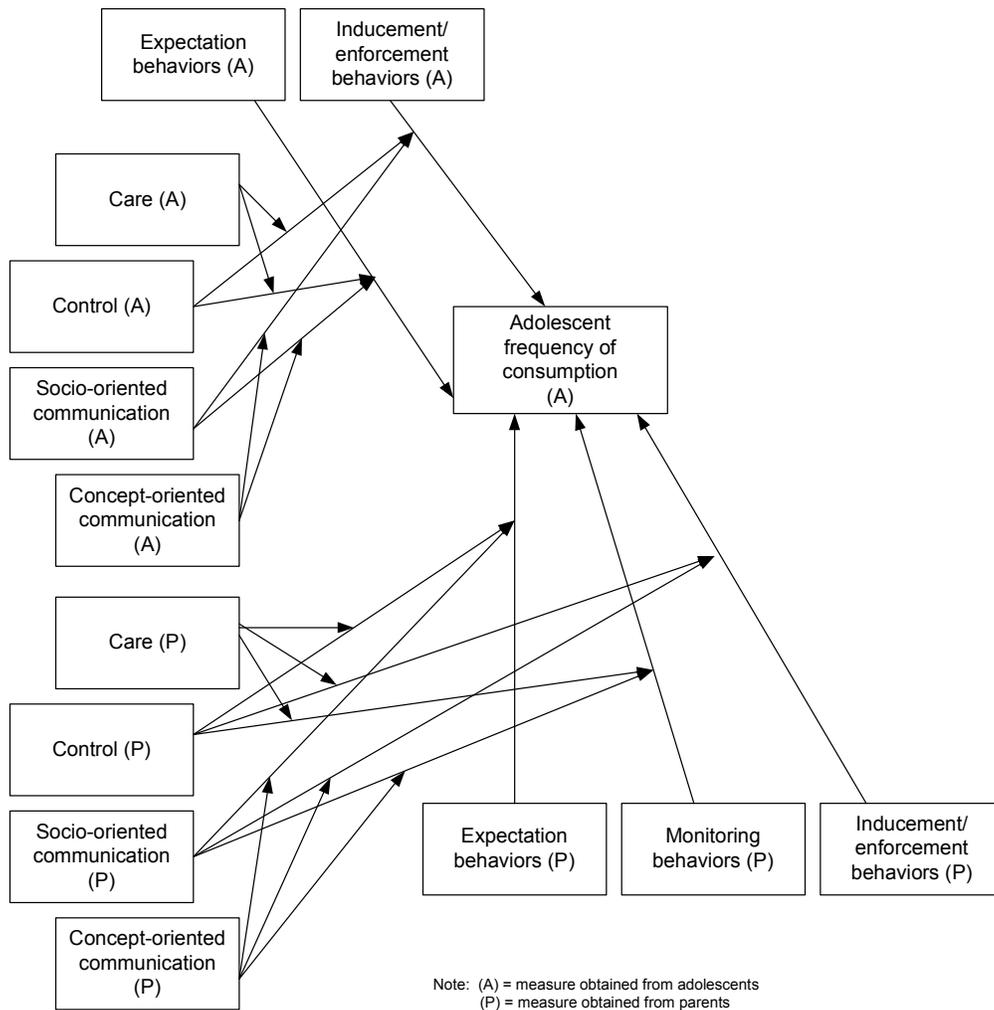
Parenting. The literatures on consumer socialization and parental control and monitoring would suggest parenting style, family communication style, and parenting practices (i.e., expectation, monitoring, and inducement/enforcement behaviors) impact adolescent behavior.

The effect of parenting variables on adolescent choices can be examined from either a parent or adolescent perspective, and has been demonstrated from both perspectives. For example, Vereecken et al. (2009) found parent-reported parenting variables to have an impact on adolescent food choice, and Berge et al. (2010) found adolescent-reported parenting variables to have an impact on adolescent food choice. However, as demonstrated in Study 1, parents and adolescents may have different perceptions of parenting variables. Since most prior work assessing the impact of parenting variables on adolescent food choices (for an exception, see Bylund et al. 2010) has focused solely on the perspective of the parent or the adolescent, it unclear which perspective has a stronger influence on adolescent behavior. Therefore, the proposed model examines parenting styles, family communication styles, and parenting practices from both the perspective of parents and adolescents.

A model representing the relationships predicted from the consumer socialization and parental control and monitoring literatures is pictured in Figure 11. Constructs examined from an

adolescent perspective are marked in the model with an “A,” and constructs examined from a parent perspective are marked in the model with a “P.” Specific hypotheses are outlined below.

Figure 11 – Model of Adolescent Food Choice Predicted by the Consumer Socialization and Parental Control and Monitoring Literatures



Direct effects – parenting practices. Based on past literature (e.g., Bylund et al. 2010; De Bourdeaudhuij 1997; Fisher and Birch 1999; Klesges et al. 1991) parenting practices were predicted to have a direct impact on adolescent food choices. Hypotheses about the role of

specific parenting practices on adolescent food choices were developed based on the findings of Study 1.

Expectations. The total number of parent-reported parental expectations will have a positive (negative) impact on adolescents' consumption of foods linked to a healthy weight (obesity).

The total number of adolescent-reported expectations will have a negative (positive) impact on adolescents' consumption of foods linked to healthy weight (obesity).

Monitoring. The total number of parent-reported monitoring practices will have a positive (negative) impact on adolescents' consumption of foods linked to a healthy weight (obesity).

Inducement/enforcement. The findings from Study 1 do not provide clear empirical evidence to support a specific directional hypothesis regarding the relationship between parent-reported inducements/enforcements and adolescents' consumption of foods linked to a healthy weight (obesity).

The total number of adolescent-reported inducements/enforcements will have a positive (negative) impact on adolescents' consumption of foods linked to healthy weight (obesity).

Moderated relationships – parenting style and family communication style. As noted by Darling and Steinberg (1993), parenting styles represent parents' general sentiments toward their children, while parenting practices represent parents' specific actions. While practices are the direct mechanism through which parents influence their adolescents' behavior, styles are the environment in which these practices take place and can change the nature of the parent-adolescent interaction and moderate the relationship between practices and outcomes. Therefore,

styles are predicted to moderate the relationship between parenting practices and adolescents' consumption of foods linked to a healthy weight (obesity).

Parenting style as a moderator. There are two dimensions of parenting style: care and control. The care dimension of parenting style reflects how warm or hostile parents act towards their children. The control dimension of parenting style captures how generally restrictive or permissive parents are with their children. These two dimensions are often combined to define four parenting styles: authoritative (parents who are warm and restrictive), authoritarian (parents who are hostile and restrictive), permissive (parents who are warm and permissive) and neglectful (parents who are hostile and permissive).

Past work has suggested that adolescents of authoritative parents may be more motivated to act in accordance with their parents' practices, because authoritative parents exercise sufficient control to compel adolescents to comply with rules and sufficient warmth to make adolescents feel open to parental influence (Darling and Steinberg 1993). For example, van der Horst et al. (2003) found parents' use of restriction-setting to be most effective in decreasing adolescents' consumption of sugar-sweetened beverages when parents were warm and moderately restrictive (i.e., exhibited an authoritative parenting style).

Therefore, it is hypothesized that the relationship between parent-reported parenting practices (i.e., expectation, monitoring, and inducement/enforcement behaviors) and adolescents' consumption of foods linked to a healthy weight (obesity) will be strengthened by a high degree of parent-reported parental control, but only when parent-reported parental care is also high. Likewise, the relationship between adolescent-reported parenting practices (i.e., expectation and inducement/enforcement behaviors) and adolescents' consumption of foods linked to a healthy

weight (obesity) will be strengthened by a high degree of adolescent-reported parental control, but only when adolescent-reported parental care is also high.

Another possibility is that parenting styles will have a direct impact on adolescent food choice. Many previous studies have found parenting style to impact adolescent food choice (e.g., Berge et al. 2010; Kremers et al. 2003). However, most studies examining the impact of parenting style on adolescent food choice do not include specific parenting practices in their models. In one notable exception, Vereecken et al. (2009) examined a model including both parenting styles and parenting practices and found significant effects of practices but not style on adolescent food consumption. One possibility is that parenting style picks up some of the variance associated with specific parenting practices when specific parenting practices are not included in the model. Therefore, it is hypothesized parenting style will have no direct effect on adolescents' consumption of foods linked to a healthy weight (obesity).

Family communication style as a moderator. There are two types of family communication styles: socio- and concept-oriented. Socio-oriented communication stresses obedience to parents, while concept-oriented communication encourages adolescents to develop their own views about the world. These two aspects of family communication style can be combined to define four parenting styles: consensual (parents who practice high levels of both socio- and concept-oriented communication), protective (parents who practice high levels of socio-oriented communication and low levels of concept-oriented communication), pluralistic (parents who practice low levels of socio-oriented communication and high levels of concept-oriented communication) and laissez faire (parents who practice low levels of both socio- and concept-oriented communication).

No work to date has examined family communication style as a moderator of the relationship between parenting practices and adolescent outcomes. However, a hypothesis about the nature of this moderated relationship can be derived by extrapolating from the moderating relationship of parenting style. The parenting style most thought to strengthen the relationship between parenting practices and adolescent outcomes is authoritative (i.e., emphasizing both care and control). Authoritative parents are thought to exercise both enough control to get adolescents motivated to comply with practices and enough care to make adolescents' open to parental influence. The family communication style most analogous to an authoritative parenting style is a consensual style.

Consensual parents emphasize both concept- and socio-oriented communication. Concept-oriented communication, which encourages adolescents to ask questions, may get adolescents engaged and allow them to fully understand their parents' practices. This may result in enhanced compliance. The socio-oriented aspect of family communication style, which emphasizes deference to authority, may cause adolescents to respect their parents' practices and, thus, act in accordance with them.

Therefore, it is hypothesized that the relationship between parent-reported parenting practices (i.e., expectation, monitoring, and inducement/enforcement behaviors) and adolescents' consumption of foods linked to a healthy weight (obesity) will be strengthened by a high degree of parent-reported parental socio-oriented communication, but only when parent-reported parental concept-oriented communication is also high. Likewise, the relationship between adolescent-reported parenting practices (i.e., expectation and inducement/enforcement behaviors) and adolescents' consumption of foods linked to a healthy weight (obesity) will be strengthened

by a high degree of adolescent-reported parental socio-oriented communication, but only when adolescent-reported parental concept-oriented communication is also high.

Another possibility is that family communication style will have a direct impact on adolescent food choice. No studies have examined the direct role of family communication style on adolescent food choice. However, like parenting style, family communication style is a general measure of socialization. While family communication style could be predicted to have a direct impact on adolescent food choice when specific parenting practices are not included in the model, this direct impact may not exist when specific parenting practices are included in a model of adolescent food choice. Therefore, no direct effect of family communication style on adolescents' consumption of foods linked to a healthy weight (obesity) is predicted.

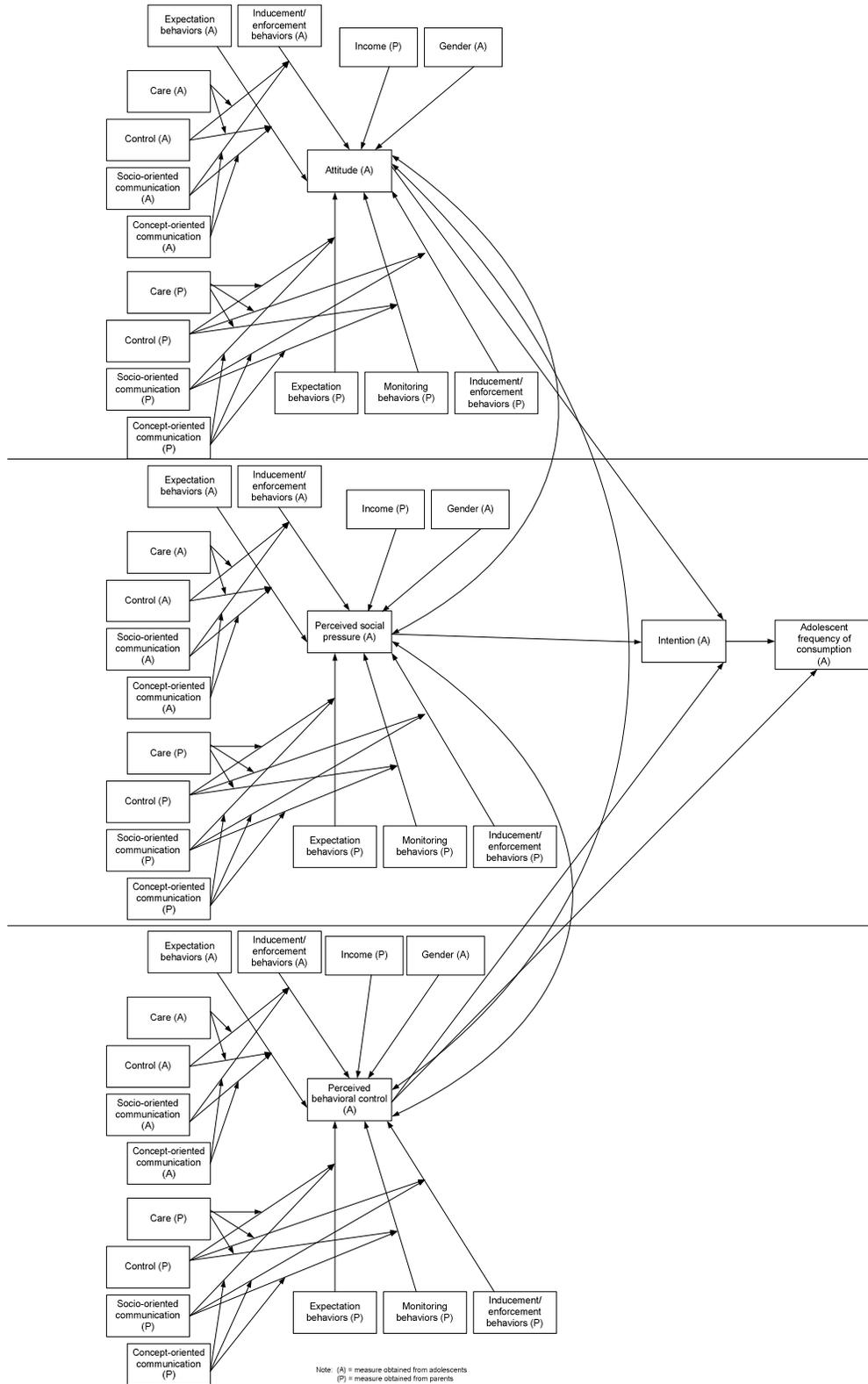
An integrated model. To provide a more comprehensive model of adolescent food choice, the proposed model integrates the TPB with the parenting model derived from the consumer socialization and parental control and monitoring literatures. According to the TPB, the influence of factors such as parenting styles and practices on behavior is hypothesized to be mediated through attitude, perceived social pressure, perceived behavioral control (which is, in turn, mediated through intention). This suggests that the proposed parenting variables will not have a direct impact on adolescent food choice. Rather, they will have an indirect impact through their effects on attitude, perceived social pressure, and perceived behavioral control.

Parenting practices could reasonably have an impact on all three distal predictors of behavior from the TPB. Parents' expectation, monitoring, and inducement/enforcement behaviors could impact the way adolescents evaluate (i.e., their attitude toward) the consumption of foods linked to a healthy weight (obesity), the pressure adolescents feel to conform with the expectations of others (i.e., social pressure) to consume foods linked to a healthy weight

(obesity), and the efficacy (i.e., perceived behavioral control) adolescents feel regarding their ability to consume foods linked to a healthy weight (obesity). Thus, the impact of parental expectation, monitoring, and inducement/enforcement behaviors on attitude, perceived social pressure, and perceived behavioral control are all examined. As the TPB predicts the effects from these distal variables will ultimately impact behavior (as mediated by attitude, perceived social pressure, perceived behavioral control, and intention), the hypothesized directions of the relationships between parenting practices and attitude, perceived social pressure, and perceived behavioral control are the same as those predicted when examining the direct impact of parenting practices on behavior. In the same vein, parenting style and family communication style are still predicted to play moderating roles.

The integrated model of adolescent food choice is pictured in Figure 12. Household income and adolescent gender were included in the model as control variables, as income is often associated with a higher (lower) consumption of foods linked to a healthy weight (obesity; Darmon and Drewnowski 2008; Turrell et al. 2003) and adolescent females have been shown to eat more (less) food linked with a healthy weight (obesity) than adolescent males (Lien, Jacobs, and Klepp 2002; Lien, Lytle, and Klepp 2001). Constructs examined from an adolescent perspective are marked in the model with an “A,” and constructs examined from a parent perspective are marked in the model with a “P.”

Figure 12 – Integrated Model of Adolescent Food Choice



CHAPTER 9 – STUDY 2

9.1 Overview

The main objective of Study 2 was to evaluate a structural model of adolescent food choice integrating constructs from the TPB, the parental behaviors identified in the interviews, and parental socialization styles. The theoretical constructs were assessed from a sample of parent-adolescent dyads using a survey methodology. Data collection took place in Fall 2010 and Spring 2011².

9.2 Sample

Two hundred parent-adolescent dyads were recruited by e-mailing randomly selected faculty and staff from the Virginia Tech directory and placing advertisements in local community centers, businesses, and news outlets. The advertisements called for one parent (the primary food preparer of the household) and one adolescent between the ages of 11 and 14 to complete out an online questionnaire for monetary compensation (\$20 per family). The age range of adolescents was narrowed for this study to decrease possible maturational differences in respondents. See Appendix H for the recruitment e-mail and Appendix I for the recruitment flyer.

9.3 Procedure

Participants expressing interest in the survey were sent an e-mail with a 4-digit subject code and directions for completing the questionnaire (see Appendix J for instructions e-mail). All participants were first directed to an online survey website and asked to type in their 4-digit code. They were then asked to read and sign a consent form (see Appendix K for consent forms).

² Financial support was provided by an Association for Consumer Research/Sheth Foundation Dissertation Grant.

Additionally, parents were asked to complete a consent form for their adolescent and provide an address to which their family's payment should be sent.

Following completion of the consent/payment processing forms, all participants were directed to a separate website hosting the questionnaire. Participants first read instructions and completed a practice item and then moved on to the questionnaire (see Appendix L for questionnaire instructions and practice item). Upon successful completion of both the parent and adolescent questionnaire, families were sent a \$20 check for their participation. In the event that either the parent or adolescent did not fully complete the questionnaire, the family's payment was prorated. Approximately 91% of those who received the survey links completed both surveys.

9.4 Measures

The parent questionnaire contained items assessing parenting practices (pertaining to food-related expectation, monitoring, and inducement/enforcement behaviors), parenting style, and family communication style. The adolescent questionnaire contained parallel versions of these items. In addition, adolescents were asked about their attitude, perceived social pressure, perceived behavioral control, and intention toward the consumption of the target foods (i.e., soda, fast food, fruits, and vegetables), as well as their frequency of consumption of these foods. All participants were asked demographic questions, including gender, age, height, and weight. Parents were also asked to provide information about their household income and education level.

Parenting practices. Parenting practices related to food choice (i.e., parental expectation, monitoring, and inducement/enforcement behaviors) were assessed by items

developed based on the results of Study 1. The measures were adapted for both parents and adolescents.

Expectations. The expectations measures included items assessing the presence of rules in general, object-focused rules of restriction, context-focused rules of restriction, object-focused rules of obligation, and context-focused rules of obligation (see Appendix M for specific measures).

Monitoring. The monitoring measures included items assessing the presence of monitoring tactics in general, communication with adolescents, communication with others, direct observation, and indirect observation (see Appendix M for specific measures).

Inducement/enforcements. The inducement/enforcement measures included items assessing the presence of inducement/enforcement activities in general, talking, rewarding, controlling, self-learning, and penalties (see Appendix M for specific measures).

Parenting style. Parenting style was assessed using the brief form of the Parental Bonding Instrument (Klimidis, Minas, and Ata 1992). This scale was selected for its well-demonstrated psychometric properties, with reliabilities in the 0.70 to 0.80 range. The scale has two subscales: four items measuring the warmth v. hostility dimension of parenting style (care; e.g., “My parent seems to understand my problems”) and four items measuring the restrictive v. permissive dimension of parenting style (control; e.g., “My parent tries to control everything I do”). The original items are worded for adolescents and were adapted for use on the parent questionnaire (see Appendix N for specific measures).

Family communication style. Family communication style was assessed using scale items adapted from Ritchie (1991) and Dong (2005), which have demonstrated reliabilities in the 0.70 to 0.80 range. The measure has two subscales: six items measuring concept-oriented

communication (e.g., “My parent tells me I should look at both sides of an issue”) and four items measuring socio-oriented communication (e.g., “My parent tells me his/her ideas are right and I shouldn't argue”). The items were adapted for both parents and adolescents (see Appendix O for specific measures).

Theory of planned behavior. Constructs from the TPB were assessed with respect to adolescents’ food choices. As stated in Chapter 3, behavior predicted from TPB variables should be defined as clearly as possible in terms of the action performed, the target at which the action is directed, the context in which the action is performed, and the time at which the action is performed (Fishbein and Ajzen 2010). The questions asked about adolescents’ attitude, perceived social pressure, perceived behavioral control, and intention towards consuming (action) target foods (target) a specific number of times per week (time). Context was not included because the research was concerned with the total consumption of the target foods, rather than their consumption within a specific context.

Adolescents were asked about their attitude, perceived social pressure, perceived behavioral control, and intention towards consuming vegetables, fruit, and soda four or more times per week (e.g., the attitude question for vegetables read, “All things considered, my attitude toward eating vegetables 4 or more times a week is favorable”). They were asked about their attitude, perceived social pressure, perceived behavioral control, and intention towards consuming fast food two or more times per week (see Appendix P for specific measures).

Food consumption. The consumption of foods related to obesity in adolescents (i.e., soda and fast food) and the consumption of foods related to a healthy weight in adolescents (i.e., fruits and vegetables) were assessed using a frequency measure. Base rate consumption frequencies of fruit, vegetables, fast food, and soda, were obtained from the Center for Disease

Control's Youth Risk Behavior Surveillance System (YRBSS) and the National Longitudinal Study of Adolescent Health (Add Health). The median consumption for the target foods was determined to ensure adequate variation on the consumption measures.

Information on the fruit, vegetable, and soda consumption of adolescents was obtained from the 2009 YRBSS. The data were comprised of a nationally representative sample of students in grades 9-12 at public and private schools in the United States (N = 16,410). Approximately half of the adolescents in the YRBSS dataset reported eating fruits 4 or more times per week (54%), eating vegetables 4 or more times per week (59%), and drinking soda 4 or more times per week (47%). Based on this information, the frequency of consumption variables for vegetables, fruits, and non-diet soda were set at 4 or more times per week (see Appendix Q for specific measures).

Data from Wave II of the Add Health project were used to inform the fast food frequency measure. The data were collected in 1996 and included 14,738 adolescents aged 11-21 years old. Approximately half of American adolescents (59%) ate fast food 2 or more times per week. Based on these data, the frequency of consumption variable for fast food was set to 2 or more times per week (see Appendix Q for specific measures).

Demographics. All participants were asked for their age, gender, height, and weight. Parents were also asked to provide information about their household income and education level (see Appendix R for specific measures).

9.5 Results

One hundred and ninety-four parent-adolescent dyads were included in the final analyses. There were no missing values for these participants. Dyads including parents who did not identify themselves as the primary food preparer of the house were dropped, because recruitment

specifically targeted primary food preparers due to their dominant position in household food choices.

Psychometric properties of the measures. The psychometric properties of the questionnaire items were assessed to determine their adequacy. For the constructs with more than three indicators, an exploratory factor analysis (EFA) was conducted to examine dimensionality and determine if indicator items were loading as expected. The EFAs were based on eigenvalues > 1 and used a varimax rotation to help interpret the factors. Cronbach's alphas were also calculated for each composite measure.

Parenting practices – expectations. “Exp” was an aggregate measure of all expectations reported by adolescents and was calculated by taking the mean of the four expectations measures (i.e., object-focused rules of restriction, context-focused rules of restriction, object-focused rules of obligation, and context-focused rules of obligation). “P_Exp” reflected this information as reported by parents. The EFAs for both the parent and adolescent versions of the expectations measure revealed a one factor solution. The Cronbach's alphas for these measures are reported in Table 1.

Parenting practices – monitoring. “P_Monit” was an aggregate measure of all monitoring practices reported by parents and was calculated by taking the mean of the four monitoring measures (i.e., communication with adolescents, communication with others, direct observation, and indirect observation). The EFA for the monitoring measure revealed a one factor solution. The Cronbach's alpha for this measure is reported in Table 1.

Parenting practices – inducement/enforcement. “Ind_enf” was an aggregate measure of all inducement/enforcement practices reported by adolescents and was calculated by taking the mean of the five inducement/enforcement measures (i.e., talking, rewarding, controlling, self-

learning, and penalties). “P_Ind_enf” reflected this information as reported by parents. The EFAs for both the parent and adolescent versions of the inducement/enforcement measure revealed all items except self-learning to load a single factor. Therefore, self-learning was dropped and new composites were calculated (“Ind_enf_EFA_revised” and “P_Ind_enf_EFA_revised”). The Cronbach’s alphas for these measures are reported in Table 1.

Parenting style. Two constructs were created from the parenting style measures. “Care” represented the warmth v. hostility dimension of parenting style as reported by adolescents and was calculated by taking the mean of the four care items (with the negative items reversed so that all items represented a higher degree of care). “P_Care” reflected this information as reported by parents. The EFAs for both the parent and adolescent versions of the care measure revealed a one factor solution. The Cronbach’s alphas for these measures are reported in Table 1.

“Control” represented the restrictive v. permissive dimension of parenting style as reported by adolescents and was calculated by taking the mean of the four control items (with the negative items reversed so that all items represented a higher degree of control). “P_Control” reflected this information as reported by parents. The EFAs for both the parent and adolescent versions of the control measure revealed a two factor solution. Two items (one assessing the parent’s attempt to control all of the adolescent’s actions and one assessing the parent’s protectiveness of the adolescent) loaded on factor one, one item (assessing the amount of freedom the parent gives the adolescent) loaded on factor two, and one item (assessing the degree to which the parent likes the adolescent to make his/her own decisions) did not load cleanly onto either factor. Therefore, new composites were calculated (“Control_EFA_revised” and “P_Control_EFA_revised”) including only the two items that loaded on factor one. The Cronbach’s alphas for these revised measures are reported in Table 1.

Family communication style. Two constructs were created from the family communication style measures. “Concept” was calculated by taking the mean of the six concept-oriented items as reported by adolescents. “P_Concept” reflected this information as reported by parents. The EFAs for both the parent and adolescent versions of the concept-oriented communication measure revealed a two factor solution, with four of the measures loading on factor one and two of the concept measures (one assessing the extent to which parents communicate that kids know more about some things than adults and one assessing the extent to which parents encourage their adolescents to question other people’s opinions) loading on factor two. Therefore, the two measures loading on factor two were dropped and new composites were calculated (“Concept_EFA_revised” and “P_Concept_EFA_revised”). The Cronbach’s alphas for these revised measures are reported in Table 1.

“Socio” was calculated by taking the mean of the four socio-oriented items as reported by adolescents. “P_Socio” reflected this information as reported by parents. The EFAs for both the parent and adolescent versions of the socio-oriented communication measure revealed a one factor solution. The Cronbach’s alphas for these measures are reported in Table 1.

Theory of planned behavior. Four constructs were created to reflect adolescents’ attitude, perceived social pressure, perceived behavioral control, and intention towards foods linked to a healthy weight (i.e., vegetables and fruits), and four constructs were created to reflect adolescents’ attitude, perceived social pressure, perceived behavioral control, and intention towards foods linked to obesity (i.e., fast food and soda). “Att_healthy” (“Att_unhealthy”) represented adolescents’ attitude toward the consumption of foods linked to a healthy weight (obesity) and was calculated by taking the mean of the measures assessing adolescents’ attitude toward vegetables and fruits (fast food and soda). “SP_healthy” (“SP_unhealthy”) represented

adolescents' perceived social pressure toward the consumption of foods linked to a healthy weight (obesity) was calculated by taking the mean of the measures assessing adolescents' perceived injunctive and descriptive norms toward the consumption of vegetables and fruits (fast food and soda). "BC_healthy" ("BC_unhealthy") represented adolescents' perceived behavioral control toward the consumption of foods linked to a healthy weight (obesity) and was calculated by taking the mean of the measures assessing adolescents' perceived behavioral control of the consumption of vegetables and fruits (fast food and soda). "Int_healthy" ("Int_unhealthy") represented adolescents' intention toward the consumption of foods linked to healthy weight (obesity) and was calculated by taking the mean of the items assessing adolescents' intention measures toward the consumption of vegetables and fruits (fast food and soda). The Cronbach's alphas for these measures are reported in Table 1.

Food consumption. To reflect consumption of foods linked to a healthy weight (i.e., vegetables and fruits), "Freq_healthy" was calculated by taking the mean of the measures assessing adolescents' reported consumption of vegetables and adolescents' reported consumption of fruit. To reflect consumption of foods associated with obesity (i.e., fast food and soda), "Freq_unhealthy" was calculated by taking the mean of the items assessing adolescents' reported consumption of fast food and adolescents' reported consumption of soda. The Cronbach's alphas for these measures are reported in Table 1.

Table 1 – Cronbach’s Alphas for the Composite Measures Used in the Models

	Cronbach’s alpha
Exp	0.69
P_Exp	0.71
P_Monit	0.66
Ind_enf_EFA_revised	0.65
P_Ind_enf_EFA_revised	0.69
Care	0.67
P_Care	0.35
Control_EFA_revised	0.77
P_Control_EFA_revised	0.73
Concept_EFA_revised	0.78
P_Concept_EFA_revised	0.75
Socio	0.64
P_Socio	0.62
Int_healthy	0.68
Int_unhealthy	0.57
Att_healthy	0.66
Att_unhealthy	0.47
SP_healthy	0.79
SP_unhealthy	0.76
BC_healthy	0.64
BC_unhealthy	0.76
Freq_healthy	0.72
Freq_unhealthy	0.57

The Cronbach’s alphas for four items (“P_Care,” “Int_unhealthy,” “Att_unhealthy,” and “Freq_unhealthy”) were lower than expected. However, according to Nunnally and Bernstein (1994), low alpha reliabilities are acceptable for scales with only a few items if the average item-total correlation is greater than or equal to 0.25. The average item-total correlation for “P_Care,” “Int_unhealthy,” “Att_unhealthy” and “Freq_unhealthy” were, 0.59, 0.84, 0.81, and 0.84, respectively. Based on the overall assessment of the measures’ psychometric qualities, the composite measures were used in the model assessments.

Preliminary analyses.

Descriptive statistics. Table 2 shows the means and standard deviations for the continuous variables used in the models. Reported values are for the raw scores, but all variables were mean centered before they were analyzed (Jaccard and Turrisi 2003).

Table 2 – Means and Standard Deviations for the Continuous Variables Used in the Models

		Mean	Std. Deviation
Frequency of consumption (reported by adolescents)	Freq_healthy	4.14	0.81
	Freq_unhealthy	2.22	0.81
TPB variables (reported by adolescents)	Int_healthy	4.03	0.82
	Int_unhealthy	2.33	0.94
	Att_healthy	4.06	0.81
	Att_unhealthy	2.82	0.99
	social_pressure_healthy	4.33	0.56
	social_pressure_unhealthy	2.05	0.76
	BC_healthy	4.46	0.62
	BC_unhealthy	2.83	1.16
Parenting styles and practices (reported by adolescents)	Care	4.09	0.64
	Control_EFA_revised	2.16	0.94
	Concept_EFA_revised	3.94	0.61
	Socio	3.36	0.68
	Exp	3.33	0.81
	Ind_inf_EFA_revised	2.74	0.75
	Parenting styles and practices (reported by parents)	P_care_total	4.21
P_Control_EFA_revised		1.68	0.66
P_Concept_EFA_revised		4.19	0.46
P_Socio		3.02	0.61
P_Exp		3.55	0.78
P_Monit		3.51	0.66
P_Ind_inf_EFA_revised		3.06	0.73

Outliers. Both model-based and non-model based outlier analyses were used. To test for non-model based outliers, a leverage score was calculated for each respondent based on their

multivariate profile for the variables included in the models. The mean leverage score across respondents for the models was 0.21. An outlier was defined as anyone having a leverage score four times the value of the mean (Jaccard and Wan 1996). No outliers were evident using this criterion.

Model-based outliers were examined using limited information regression analyses for each of the linear equations dictated by the various path models tested (Bollen 1996). The standardized dfBeta values were examined for each individual relative to each path coefficient to isolate unusually influential individuals in parameter estimation. An outlier was defined as individuals who had standardized dfBetas greater than the absolute value of 1.00. No outliers were evident in these analyses.

Normality. Normality was tested at the univariate level by examining the skewness and kurtosis of the continuous variables in the model (see Table 3). Three constructs violated normality (i.e., had an absolute value of skewness and/or kurtosis greater than the absolute value of 2.00). However, maximum likelihood methods of estimation assume only that the Y variables in a model are normally distributed (Muthén and Muthén 2007). The two dependent variables examined (i.e., frequency of consumption of foods linked to a healthy weight and frequency of consumption of foods linked to obesity) did not violate normality. Therefore, maximum likelihood estimates were pursued.

Table 3 – Skewness and Kurtosis for the Continuous Variables Used in the Models

		Skewness	Kurtosis
Frequency of consumption (reported by adolescents)	Freq_healthy	-0.87	0.32
	Freq_unhealthy	0.60	0.11
TPB variables (reported by adolescents)	Int_healthy	-0.67	-0.18
	Int_unhealthy	0.54	-0.18
	Att_healthy	-0.79	-0.08
	Att_unhealthy	0.11	-0.62
	social_pressure_healthy	-0.69	0.53
	social_pressure_unhealthy	0.49	-0.17
	BC_healthy	-1.40	3.96
	BC_unhealthy	0.21	-0.85
Parenting styles and practices (reported by adolescents)	Care	-0.66	0.05
	Control_EFA_revised	0.84	0.24
	Concept_EFA_revised	-0.80	2.53
	Socio	-0.27	0.03
	Exp	-0.19	0.02
	Ind_enf_EFA_revised	-0.26	-0.03
Parenting styles and practices (reported by parents)	P_care_total	-0.31	-0.16
	P_Control_EFA_revised	1.48	3.56
	P_Concept_EFA_revised	-0.18	0.25
	P_Socio	0.01	-0.07
	P_Exp	-0.35	-0.06
	P_Monit	-0.81	1.58
	P_Ind_enf_EFA_revised	-0.28	0.36

Model trimming. Two models were examined: one predicting adolescent consumption of foods associated with a healthy weight and one predicting adolescent consumption of foods associated with obesity. Due to the large number of proposed interactions, a trimming process was used to determine which interactions to include in the final models. Preliminary regressions were run predicting adolescents' attitude, perceived social pressure, and perceived behavioral control from parenting styles, family communication styles, parenting practices, and their hypothesized interactions. Statistically non-significant interactions were trimmed from the

analysis to yield final models which were both more parsimonious and had increased the statistical power (Jaccard and Dodge 2002).

To examine the hypothesized interactions between the two dimensions of parenting style (i.e., parental care and parental control) and specific parenting practices, three-way interaction terms were created for each parenting practice (e.g., parental care*parental control*parental expectations). A similar approach was used to examine the hypothesized interactions between the two dimensions of family communication style (i.e., parental socio- and concept-oriented communication) and specific parenting practices (e.g., parental socio-oriented communication*parental concept-oriented communication*parental expectations). In order to test for the three-way interactions, all components of the three way-interactions, including all two-way interactions between each of the style dimensions and practices were also included (e.g., parental care*parental control, parental care*parental expectations, and parental control*parental expectations for parenting style and parental concept-oriented communication*parental socio-oriented communication, parental concept-orientated communication*expectations, and parental socio-oriented communication*parental expectations for family communication style). Interactions were created using both parent-reported parental styles and practices and adolescent-reported parental styles and practices.

Attitude. None of the interactions between styles and practices were significant in the preliminary regression examining adolescents' attitude toward the consumption of food linked to a healthy weight. One significant interaction (parent-reported parental care*parent-reported parental expectations) was identified in the preliminary regression examining attitudes toward the consumption of foods linked to obesity.

Perceived social pressure. One significant interaction (adolescent-reported parental socio-oriented communication*adolescent-reported parental inducements/enforcements) was identified in the preliminary regression examining adolescents' perceived social pressure toward the consumption of food linked to healthy weight. None of the interactions between styles and practices were significant in the preliminary regression examining adolescents' perceived social pressure toward the consumption of foods linked to obesity.

Perceived behavioral control. One significant two-way interaction (adolescent-reported parental care*adolescent-reported parental control) and one significant three-way interaction (parent-reported parental care*parent-reported parental control*parent-reported parental expectations/inducements) were identified in the preliminary regression examining attitudes toward the consumption of foods linked to healthy foods. Two significant two-way interactions (adolescent-reported parental care*adolescent-reported parental expectations and adolescent-reported parental care*adolescent-reported parental inducements/enforcements) were identified in the preliminary regression examining attitudes toward the consumption of foods linked to obesity.

Main analyses. A structural equations modeling (SEM) approach was applied using M Plus 5 to test the hypothesized models. Following the recommendations of Bollen and Long (1993), a variety of global fit indices were used, including indices of absolute fit, indices of relative fit, and indices of fit with a penalty function for lack of parsimony. Specifically, the traditional overall chi square test of model fit (which should be statistically non-significant), the Root Mean Square Error of Approximation (RMSEA; which should be less than 0.08), the Comparative Fit Index (CFI; which should be greater than 0.95), and the standardized root mean square residual (SRMR; which should be less than 0.05) were used. In addition to the global fit

indices, more focused tests of fit were pursued. The standardized residual covariances (which should be between -2.00 and 2.00) and modification indices (which should be less than 4.00) were examined.

Predicting adolescent consumption of foods linked to a healthy weight. The model predicting adolescent consumption of foods linked to a healthy weight had several components. Consumption was predicted by intention and perceived behavioral control. Intention was predicted by attitude, perceived social pressure, and perceived behavioral control. Attitude, perceived social pressure, and perceived behavioral control were each predicted by income, gender, parenting styles, parenting practices, and the interactions identified in the preliminary analyses. All exogenous variables were assumed to be correlated. Attitude, perceived social pressure, and perceived behavioral control were also assumed to be correlated, as it was likely common variables outside those examined in the model could have an impact on these constructs.

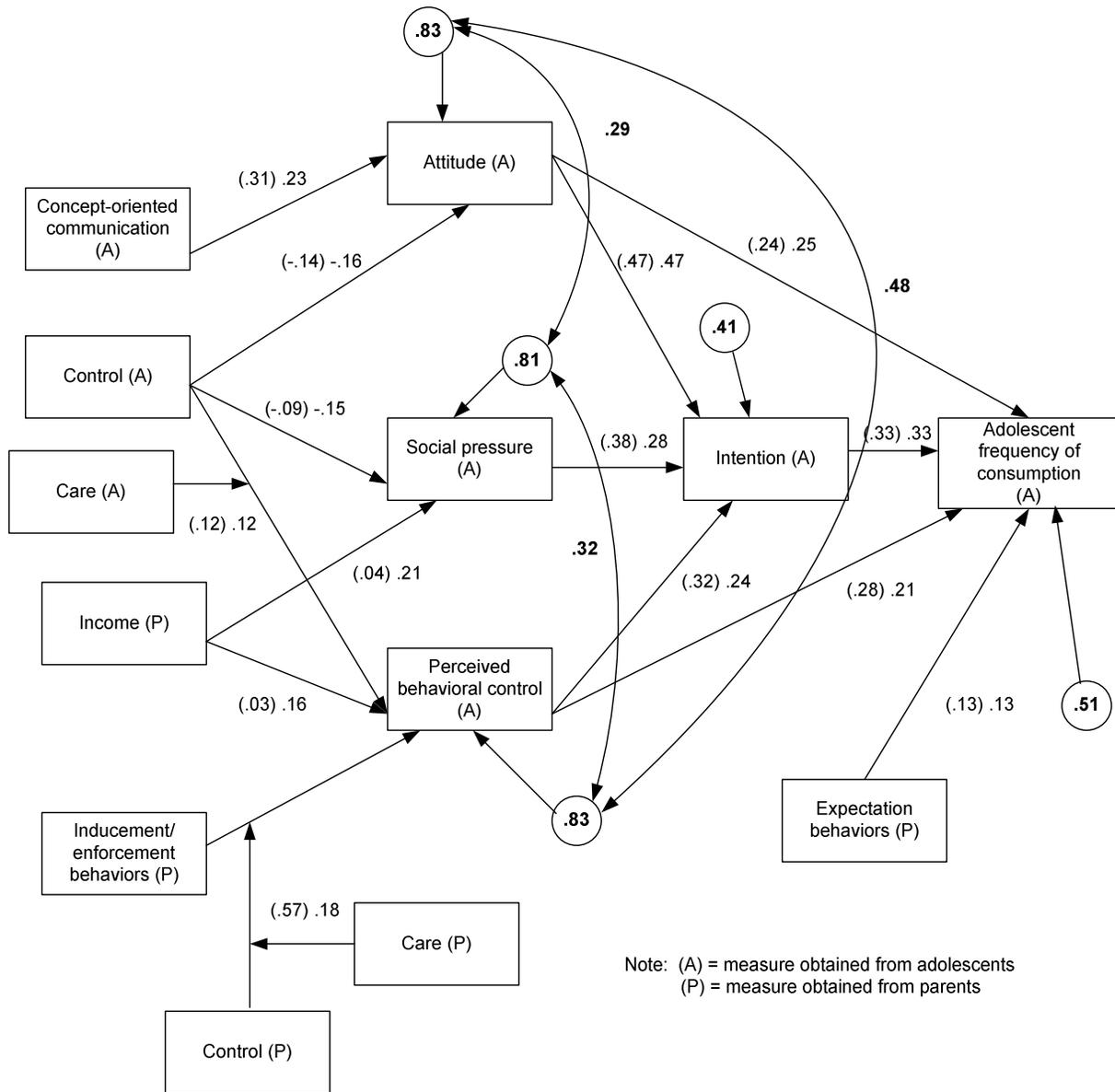
The initial model had a good fit ($\chi^2 = 71.37$, $df = 56$, $p = 0.08$; CFI = 0.97; RMSEA = 0.04; SRMR = 0.02). However, the adolescent-reported parental socio-oriented communication by adolescent-reported parental inducement/enforcement behavior interaction was no longer significant when included in the full model, so it was dropped.

The re-fit model had a good fit ($\chi^2 = 65.98$, $df = 52$, $p = 0.09$; CFI = 0.97; RMSEA = 0.04; SRMR = 0.02). However, an examination of the modification indices revealed model fit could be improved with the creation of additional paths. An iterative approach examining both change in model fit and the theoretical significance of the suggested changes were used to determine whether to include each path. Two paths were added to the final model: 1) a direct path from attitude to consumption and 2) a direct path from parent-reported expectations to

consumption. Both paths were theoretically justified. Some work on the TPB has suggested that attitude has direct impact on behavior (Bentler and Speckhart 1979), and prior work on parental control and monitoring literature has demonstrated expectations to have a direct impact on adolescent behavior (e.g., De Bourdeaudhuij 1997; Bylund et al. 2010).

The revised model had a good model fit ($\chi^2 = 48.51$, $df = 50$, $p = 0.53$; CFI = 1.00; RMSEA = 0.00; SRMR = 0.02). The path coefficients for the model are presented in Figure 13. For ease of presentation, only the paths with significant coefficients ($p \leq 0.05$) are presented and discussed. Both the unstandardized and standardized path coefficients are presented, with the unstandardized coefficients in parentheses. The residuals and correlations are reported in standardized metrics. In the interest of space, the coefficients below are reported with the understanding that they represent the effect of a predictor on its criterion holding constant all other predictors in the linear equation.

Figure 13 – Model of Adolescent Consumption of Foods Associated with a Healthy Weight



Impacts on attitude. Adolescent-reported parental control had a negative impact on adolescents’ attitude toward the consumption of foods linked to a healthy weight. As adolescents’ perception of parental control increases, their attitude toward the consumption of healthy foods decreases. This pattern may suggest psychological reactance; as adolescents’

perceive their parents to exert more control, they react against this control by evaluating a behavior desired by their parents more negatively.

Adolescent-reported parental concept-oriented communication had a positive impact on adolescents' attitude toward the consumption of foods linked to a healthy weight. Adolescents' attitude toward the consumption of healthy foods increases as adolescents' perceive their parents to have a communication style more targeted to allowing adolescents' to form their own viewpoints. This is consistent with past work finding concept-oriented communication to be associated with better outcomes for adolescents (e.g., Moore and Moschis 1981; Kim et al. 2009) and suggests this relationship is mediated by adolescents' attitude.

Impacts on perceived social pressure. Family income had a positive impact on adolescents' perceived social pressure toward the consumption of foods linked to a healthy weight. This suggests adolescents' from more affluent families perceived more social pressure to eat healthy foods. This is consistent with past work demonstrating income to be linked to a higher consumption of foods linked to a healthy weight (e.g., Darmon and Drewnowski 2008) and suggests this relationship is mediated by perceived social pressure.

Adolescent-reported parental control had a negative impact on adolescents' perceived social pressure toward the consumption of foods linked to a healthy weight. As adolescents' perception of parental control increases, perceived social pressure toward the consumption of healthy foods decreases. This pattern may again suggest psychological reactance. As adolescents' perceive their parents to exert more control, they react against this control by paying more attention to social cues arguing against behaviors desired by parents.

Impacts on perceived behavioral control. Family income had a positive impact on adolescents' perceived behavioral control toward the consumption of foods linked to a healthy

weight. This suggests adolescents' from more affluent families perceive greater control over their ability to eat healthy foods. This is consistent with past work associating income with a higher consumption of foods linked to a healthy weight (e.g., Turrell et al. 2003) and suggests this relationship is mediated by perceived behavioral control.

There was a statistically significant positive path coefficient associated with the interaction between adolescent-reported parental care and adolescent-reported parental control. Follow-up analyses were conducted to examine the nature of this interaction. Specifically, an iterative process was used to determine for which levels of adolescent-reported parental care the relationship between adolescent-reported parental control and adolescents' perceived behavioral control toward the consumption of foods linked to a healthy weight was statistically significant. This involved testing the relevant simple main effect at selected values across the moderator variable using a variant of the Illinois algorithm to identify regions of significance and non-significance vis-avis the classic Johnson-Neyman method (Jaccard and Turrisi 2003). The results suggested adolescent-reported parental control had a significant negative impact on adolescents' perceived behavioral control toward the consumption of foods linked to a healthy weight when adolescent-reported parental care was at a value of 3.50 or less (on a 5.00-point scale). There was no significant effect of adolescent-reported parental control for values of adolescent-reported parental care of 3.60 and higher.

These finding suggests higher levels of adolescent-reported parental control have a negative impact on adolescents' perceived behavioral control when adolescents' report lower levels of parental care. This combination of high control and low care describes the authoritarian style and suggests the negative impact of an authoritarian parenting style on adolescent food

choices found by previous research (e.g., Cullen et al. 2001) is mediated by adolescents' perceived behavioral control.

There was a statistically significant positive path coefficient associated with the three-way interaction between parent-reported parental care, parent-report parental control, and parent-reported parental inducement/enforcements suggests. To investigate the nature of this interaction, the coefficient associated with the relationship between parent-reported parental inducement/enforcement behaviors and perceived behavioral control at both low and high levels of parent-reported parental care and low and high levels of parent-reported parental control was examined. Table 4 reports the coefficient associated with the relationship between parent-reported parental inducement/enforcement behaviors and adolescents' perceived behavioral control of consuming foods linked to a healthy weight at one standard deviation above and below the sample means of parent-reported parental care and parent-reported parental control, respectively.

Table 4 – Path Coefficients for the Relationship between Parent-Reported Parental Inducement/Enforcement Behaviors and Adolescents' Perceived Behavioral Control of Consuming Food Linked to a Healthy Weight at High and Low Levels of Parent-Reported Parental Care and Parent-Reported Parental Control

	Low Parent-Reported Parental Care	High Parent-Reported Parental Care
Low Parent-Reported Parental Control	0.16	-0.14
High Parent-Reported Parental Control	-0.22*	0.15

* = $p < 0.05$

Significance testing of each coefficient demonstrated the effect of parent-reported parental inducement/enforcement behavior was only statistically significant for those scoring

both one standard deviation below the mean (a score of 3.80 on a 5.00-point scale) on parent-reported parental care and one standard deviation above the mean (a score of 2.50 on a 5.00-point scale) on parent-reported parental control (i.e., the parental characteristics consistent with an authoritarian parenting style). This finding suggests that inducement/enforcements have a negative impact on adolescents' perceived behavioral control of consuming food linked to a healthy weight when they are presented by parents exhibiting an authoritarian style. One possible explanation is that the hostile, controlling style of authoritarian parents, coupled with a high level of inducement/enforcement behaviors is overwhelming to adolescents. This finding is consistent with previous work which has demonstrated an authoritarian style to have detrimental effects on adolescents' consumption of healthy foods (Cullen et al. 2001).

Impacts on intention. As predicted by the TPB, adolescents' attitudes, perceived social pressure, and perceived behavioral control toward the consumption of foods linked to a healthy weight all had positive impacts on adolescents' intention to consume foods linked to a healthy weight. This finding is consistent with past work (e.g., Berg et al. 2000).

Impacts on behavior. As predicted by the TPB, adolescents' intention and perceived behavioral control toward the consumption of foods linked to a healthy weight had positive impacts on adolescents' consumption of foods linked to a healthy weight, consistent with past work (e.g., Backman et al. 2002). Additionally, adolescents' attitudes toward the consumption of foods linked to a healthy weight and parent-reported parental expectations had direct positive impacts on adolescents' consumption of foods linked to a healthy weight.

As adolescents' attitudes toward the consumption of foods linked to a healthy weight increases, adolescents' consumption of foods linked to a healthy weight increases. This direct relationship between attitudes and consumption suggests that attitude contributes to the

prediction of consumption beyond the mediated relationship (through intention) predicted by the TPB. This is consistent with previous work on the TPB demonstrating that attitudes may have a direct impact on behavior (Bentler and Speckhart 1979).

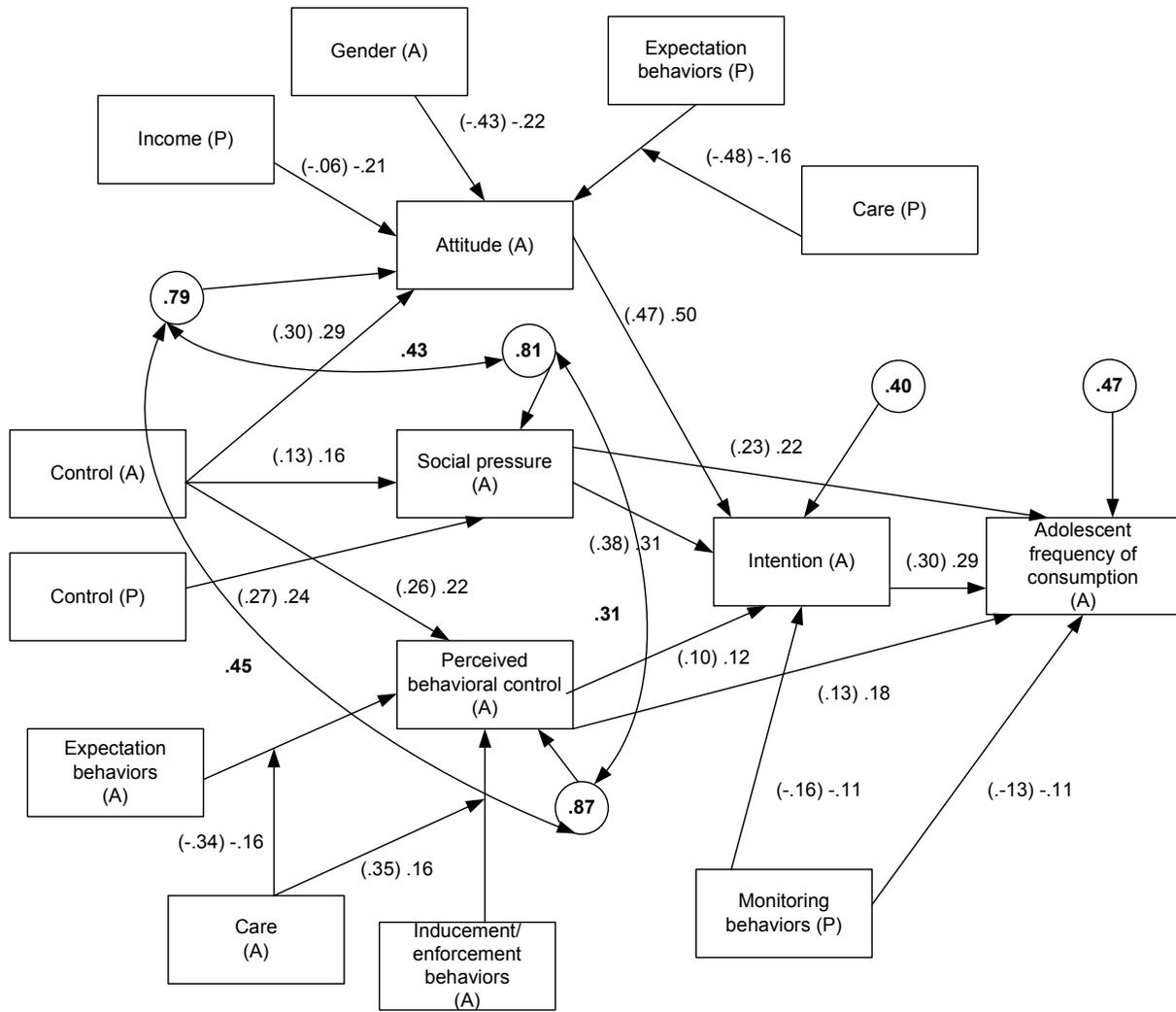
As parent-reported parental expectations increase, adolescents' consumption of foods linked to a healthy weight increases. This direct relationship between parent-reported parental expectations and consumption suggests that parent-reported expectations contribute to the prediction of consumption beyond their mediated relationships (through adolescents' attitude, perceived social pressure, perceived behavioral control, and intention) predicted by the TPB. Thus, it would appear parent-reported parental expectations predict adolescents' consumption of foods linked to healthy weight beyond the TPB. This is consistent with past work that has found a direct relationship between parental expectations and a direct impact on adolescent food choice (e.g., De Bourdeaudhuij 1997; Bylund et al. 2010).

Predicting adolescent consumption of foods linked to obesity. The model predicting adolescent consumption of foods linked to obesity had the same components as the model predicting adolescent consumption of foods linked to a healthy weight. Consumption was predicted by intention and perceived behavioral control. Intention was predicted by attitude, perceived social pressure, and perceived behavioral control. Attitude, perceived social pressure, and perceived behavioral control were each predicted by income, gender, parenting styles, parenting practices, and the interactions identified in the preliminary analyses. As in the model predicting the consumption of foods linked to a healthy weight, the exogenous variables, as well as attitude, perceived social pressure, and perceived behavioral control, were assumed to be correlated.

The model had a satisfactory fit ($\chi^2 = 62.61$, $df = 44$, $p = 0.03$; CFI = 0.96; RMSEA = 0.05; SRMR = 0.03). However, examination of the modification indices revealed model fit could be improved with the creation of additional paths. As before, an iterative approach examining both change in model fit and the theoretical significance of the suggested change was used to determine whether to include each path. Three paths were added to the final model: 1) path from social pressure to consumption, 2) path from monitoring to intention and 3) a path from monitoring to consumption. All three paths had theoretical justification. Prior work on the TPB has suggested social norms may have a direct impact on behavior (Manning 2009). Parental monitoring has been found to have a direct impact on adolescent food choice (e.g., Birch, Fisher, and Davison 2003; Klesges et al. 1991), and, since intention is a strong predictor of behavior, it follows that parental monitoring is also likely to have a direct impact on intention.

The revised model had a good model fit ($\chi^2 = 41.06$, $df = 41$, $p = 0.47$; CFI = 1.00; RMSEA = 0.00; SRMR = 0.02). The path coefficients for the model are presented in Figure 14. For ease of presentation, only the paths with significant coefficients ($p \leq 0.05$) are presented and discussed. Both the unstandardized and standardized path coefficients are presented, with the unstandardized coefficients in parentheses. The residuals and correlations are reported in in standardized metrics. Again, in the interest of space, the coefficients below are reported with the understanding that they represent the effect of a predictor on its criterion holding constant all other predictors in the linear equation.

Figure 14 – Model of Adolescent Consumption of Foods Associated with Obesity



Note: (A) = measure obtained from adolescents
(P) = measure obtained from parents

Impacts on attitude. Family income and gender had negative impacts on adolescents' attitude toward the consumption of foods linked to obesity, suggesting adolescents from more affluent families and females have a more negative attitude toward the consumption of foods linked to obesity. These findings are consistent with previous literature suggesting females and higher income individuals are less likely to consume foods linked to obesity than their

counterparts (e.g., Turrell et al. 2003; Lien, Jacobs, and Klepp 2002) and suggests these relationships are mediated by attitude.

Adolescent-reported parental control had a positive impact on adolescents' attitude toward the consumption of foods linked to obesity. This pattern suggests psychological reactance. As adolescents' perceive their parents to exert more control, they react against this control by evaluating a behavior opposed by their parents more positively.

There was a statistically significant negative path coefficient associated with the interaction between parent-reported parental care and parent-reported parental expectation behaviors. The same follow-up analyses described for the prior two-way interaction (i.e., examining the simple main effects at selected moderator values) were conducted to more carefully examine the nature of this interaction and determine for which levels of parent-reported parental care the relationship between parent-reported parental expectation behaviors and adolescents' attitude toward the consumption of foods linked to obesity was statistically significant. The results suggested parent-reported parental expectation behaviors had a significant positive impact on adolescents' attitude toward the consumption of foods linked to obesity when parent-reported parental care was at a value of 3.30 or less (on a 5.00-point scale). There was no significant effect of parent-reported parental expectations for values of parent-reported parental care of 3.40 and higher. These findings suggest that parent-reported parental expectations may cause psychological reactance and lead adolescents' to have a more positive attitude toward the consumption of foods linked to obesity in an environment in which parental care is low.

This suggests the parenting model posited by Darling and Steinberg (1993) with parenting styles as a moderator of the relationship between specific parenting practices and

adolescent behaviors is mediated through adolescents' attitude. Specifically, the findings suggest that parental expectations may lead to an increased consumption of foods linked to obesity (as mediated by attitude) in an environment lacking parental warmth.

Impacts on perceived social pressure. Both adolescent-reported and parent-reported parental control had a positive impact on adolescents' perceived social pressure toward the consumption of foods linked to obesity. These findings suggest that adolescents' perceived social pressure toward the consumption of food linked to obesity increases as both their perception of parental control and their parents' reports of parental control increases. This pattern again suggests psychological reactance. As adolescents' perceive their parents to exert more control (and as parents themselves report exerting more control), adolescents react against this control by placing more value on social cues that support a behavior opposed by their parents.

Impacts on perceived behavioral control. Adolescent-reported parental control had a positive impact on adolescents' perceived behavioral control toward the consumption of foods linked to obesity. As adolescents' perceive their parents to exert more control, adolescents believe they have more control over their ability to eat foods linked to obesity. This pattern may again suggest psychological reactance. As adolescents' perceive their parents exerting more control, they attempt to take control back by perceiving themselves as able to engage in a behavior opposed by their parents.

There was a statistically significant negative path coefficient associated with the interaction between adolescent-reported parental care and adolescent-reported parental expectation behaviors. Follow-up analyses were conducted to determine for which levels of adolescent-reported parental care the relationship between adolescent-reported parental expectation behaviors and adolescents' perceived behavioral control toward the consumption of

foods linked to obesity was statistically significant. The results suggested a marginally significant ($p = 0.06$) negative effect of adolescent-reported parental expectation behaviors on adolescents' perceived behavioral control toward the consumption of foods linked to obesity when adolescent-reported care was its highest value (i.e., 5.00 on a 5.00-point scale) and a marginally significant ($p = 0.07$) positive effect of adolescent-reported parental expectation behaviors on adolescents' perceived behavioral control toward the consumption of foods linked to obesity when adolescent-reported care was its lowest value (i.e., 1.00 on a 5.00-point scale). This suggests that adolescent-reported parental expectations can lead adolescents to perceive less control toward the consumption of food linked to obesity in an environment in which the adolescent perceives a high level of parental warmth. In an environment in which the adolescent does not perceive parental warmth, adolescent-reported parental expectations lead can adolescents' to have more perceived behavioral control toward the consumption of foods linked to obesity.

This suggests the parenting model posited by Darling and Steinberg (1993) with parenting styles as a moderator of the relationship between specific parenting practices and adolescent behaviors is mediated through adolescents' perceived behavioral control. Specifically, the findings suggest that parental expectations can be effective in reducing adolescents' consumption of foods linked to obesity (as mediated by perceived behavioral control), but only when adolescents also perceive their parents as being warm.

There was a statistically significant path coefficient associated with the interaction between adolescent-reported parental care and adolescent-reported parental inducement/enforcements. Follow-up analyses were conducted to determine for which levels of adolescent-reported parental care the relationship between adolescent-reported parental

inducement/enforcements and adolescents' perceived behavioral control toward the consumption of foods linked to obesity was statistically significant. The results suggested adolescent-reported parental inducement/enforcement behaviors had a significant negative impact on adolescents' perceived behavioral control toward the consumption of foods linked to obesity when adolescent-reported parental care was at a value of 3.80 or less (on a 5.00-point scale). There was no significant effect of parent-reported parental expectations for values of parent-reported parental care of 3.90 and higher.

The results suggest that adolescent-reported parental inducement/enforcements decrease adolescents' perceived control over consuming foods linked to obesity in an environment in which the adolescent does not perceive high levels of parental warmth. This again suggests the parenting model posited by Darling and Steinberg (1993) with parenting styles as a moderator of the relationship between specific parenting practices and adolescent behaviors is mediated through adolescents' perceived behavioral control. Specifically, the findings suggest that parental inducement/enforcement behaviors can be effective in reducing adolescents' consumption of foods linked to obesity (as mediated by perceived behavioral control), but only when adolescents do not perceive their parent as being warm.

One possibility for this relationship is that high levels of inducement/enforcements are not seen as being consistent with a caring parental style in the eyes of adolescents. Therefore, the perception of many inducements/enforcements in a general environment of parental warmth is perceived poorly by adolescents and is, therefore, not effective.

Impacts on intention. As predicted by the TPB, adolescents' attitudes, perceived social pressure, and perceived behavioral control toward the consumption of foods linked to obesity all had positive impacts on adolescents' intention to consume foods linked to obesity. This finding

is consistent with past work (e.g., Dennison and Shepherd 1995). Additionally, parental monitoring had a negative impact on adolescents' consumption of foods linked to obesity. This suggests that, as parental monitoring increases, adolescents' intention to consume foods linked to obesity decreases.

The direct relationship between parental monitoring behaviors and adolescents' intention to consume foods linked to obesity suggests that monitoring contributes to the prediction of intention beyond the mediated relationships (through adolescents' attitude, perceived social pressure, perceived behavioral control) predicted by the TPB. In other words, it would appear parental monitoring predicts adolescents' intention to consume foods linked to obesity beyond the TPB.

Impacts on behavior. As predicted by the TPB, adolescents' intention and perceived behavioral control toward the consumption of foods linked to obesity had positive impacts on adolescents' consumption of foods linked to obesity. This finding is consistent with past work (e.g., Kassem et al. 2003). Additionally, adolescents' perceived social pressure toward the consumption of foods linked to obesity had a positive impact on adolescents' consumption of foods linked to obesity and parental monitoring had negative impact on adolescents' consumption of foods linked to obesity.

As perceived social pressure toward the consumption of foods linked to obesity increases, adolescents' consumption of foods linked to obesity increases. This direct relationship between perceived social pressure and consumption suggests that perceived social pressure contributes to the prediction of consumption beyond the mediated relationship (through intention) predicted by the TPB and is consistent with prior literature suggesting social norms may have a direct impact on behavior (Manning 2009).

As parental monitoring increases, adolescents' consumption of foods linked to obesity decreases. This direct relationship between parental monitoring and consumption suggests that monitoring contributes to the prediction of consumption beyond the mediated relationships (through adolescents' attitude, perceived social pressure, perceived behavioral control, and intention) predicted by the TPB. In other words, it would appear parental monitoring predicts adolescents' consumption of foods linked to obesity beyond the TPB. This finding fits in with what is predicted by the literature on parenting and adolescent food choices. This finding is consistent with past work that has found parental monitoring to be a direct predictor of adolescent food choice (e.g., Birch, Fisher, and Davison 2003; Klesges et al. 1991).

9.6 Discussion

Theory of planned behavior variables. Overall, the predictors from the TPB performed as expected. Attitude, perceived social pressure, and perceived behavioral control toward the consumption of foods linked to a healthy weight (obesity) all had positive impacts on intention to consume foods linked to a healthy weight (obesity). Intention and perceived behavioral control toward consumption of foods linked to a healthy weight (obesity) all had positive impacts on adolescent consumption of foods linked to a healthy weight (obesity).

Unexpectedly, adolescents' attitude toward the consumption of foods linked to a healthy weight had a direct positive impact on adolescents' consumption of foods linked to a healthy weight, and adolescents' perceived social pressure toward the consumption of foods linked to obesity had a direct positive impact on adolescents' consumption of foods linked to obesity. While the TPB does not predict attitudes and perceived social pressure to have an impact on behavior beyond their indirect effects through intention, some past work has supported these relationships (Bentler and Speckhart 1979; Manning 2009).

Parenting variables. Overall, there were mixed results for the hypothesized relationships involving variables from the consumer socialization and parental control and monitoring literatures.

Parenting practices. The integrated model predicted that parenting practices would not have a direct impact on adolescent food choice. Rather, parenting practices would affect adolescents' attitude, perceived social pressure, and perceived behavioral, and these variables, in turn, would affect adolescent food choice through intention.

There was no support for a relationship between parenting practices and adolescents' attitude and perceived social pressure. There was, however, some support for a relationship between parenting practices and adolescents' perceived behavioral control. There was an effect of parent-reported parental inducement/enforcement behaviors (as moderated by parenting style) on adolescents' perceived behavioral control toward the consumption of foods linked to healthy weight. There were also effects of adolescent-reported parental expectations and parental inducements/enforcements (as moderated by adolescent-reported parental care) on adolescents' perceived behavioral control toward the consumption of foods linked obesity.

This pattern of results has an intuitive appeal. The parenting practices impacting perceived behavioral control (i.e., parental expectations and parental inducements/enforcements) concerned the setting and enforcing of rules. It is logical that setting and enforcing of food-related restrictions would impact adolescents' perceptions of their ability to consume certain foods. It is interesting that parenting practices did not have a direct impact on adolescents' attitude and perceived social pressure toward consumption. These results would suggest that adolescent-reported parental expectation and inducement/enforcement behaviors impact the control adolescents feel over their ability to engage in consumption behaviors, but they do not

impact the evaluative aspects of an adolescents' assessment of consumption or their perceived pressure to conform.

Although the integrated model did not predict there would be a direct effect of parenting practices on adolescent food choice, the results provided some evidence for this relationship. Parent-reported parental expectations had a direct positive impact on adolescents' consumption of foods linked to a healthy weight, and parental monitoring had direct effects on both adolescents' intention to consume and adolescents' actual consumption of foods linked to obesity. These findings suggest that specific parenting practices impact adolescent behavior beyond traditional predictors of the TPB.

Parenting style. There was mixed support for style as a moderator of the relationship between parenting practices and adolescents' attitudes, perceived social pressure, and perceived behavioral control toward foods linked to a healthy weight (obesity). Contrary to expectations, there was some support for parenting style as a direct predictor of adolescents' attitudes, perceived social pressure, and perceived behavioral control toward the consumption of foods linked to a healthy weight (obesity). The effects of parenting style are discussed below.

Style as a moderator. The integrated model predicted the four types of parenting styles examined in the literature (i.e., authoritarian, authoritative, permissive, and restrictive) would have a moderating role on the relationship between specific parenting practices and adolescents' attitudes, perceived social pressure, and perceived behavioral control. This was tested by creating three-way interaction terms from the two dimensions of parenting style (i.e., parental care and parental control) and specific parenting practices. However, only one three-way interaction involving the relationship between parent-reported parental inducements/enforcements and

adolescents' consumption of foods linked to a healthy weight. Therefore, there was little support for this relationship.

There was some evidence suggesting the relationship between parenting practices and perceived behavioral control was moderated by the care dimension of parenting style. Adolescent-reported parental care was found to moderate both the relationship between adolescent-reported parental expectations and adolescents' perceived behavioral control toward the consumption of foods linked to obesity and the relationship between adolescent-reported parental inducements/enforcements and adolescents' perceived behavioral control toward the consumption of foods linked to obesity. Parent-reported parental care was found to moderate the relationship between parent-reported parental expectations and adolescents' attitude toward the consumption of foods linked to obesity. These findings suggest that parental warmth has a more important influence on the relationship between parenting practices and adolescent outcomes than parental control.

Direct effects of style. While parenting styles were not expected to have a direct effect on adolescents' attitude, perceived social pressure, or perceived behavioral control toward the consumption of foods linked to a healthy weight (obesity), there was some evidence supporting this relationship.

Adolescent-reported parental care was found to moderate the relationship between adolescent-reported parental control and adolescents' perceived behavioral control toward the consumption of foods linked to a healthy weight. Results suggested an authoritarian parenting style emphasizing control and lacking warmth negatively impacted adolescents' perceived behavioral control toward the consumption of foods linked to a healthy weight.

In addition, there was substantial support for an impact of the control dimension of parenting style on adolescents' attitude, perceived social pressure, or perceived behavioral control toward the consumption of foods linked to a healthy weight (obesity). Adolescent-reported parental control was found to have direct negative impacts on adolescents' attitude and perceived social pressure toward the consumption of foods linked to a healthy weight and direct positive impacts on adolescents' attitude, perceived social pressure, and perceived behavioral control toward the consumption of foods linked to obesity. Additionally, parent-reported parental control was also found to have a direct positive impact on adolescents' perceived social pressure toward the consumption of foods linked to obesity.

The finding that parental control has a negative (positive) impact on the consumption of foods linked to a healthy weight (obesity), as mediated through attitudes, perceived social pressure, perceived behavioral control, and intention is consistent with past work demonstrating the negative impact of parental restrictiveness on adolescent food choices (e.g., Fisher and Birch 1999; Galloway et al. 2005). One possibility is that the control exerted by parents is reacted against by their adolescents in the form of adapting more negative (positive) attitudes, perceived social pressures, and perceived behavioral control toward the consumption of foods linked to a healthy weight (obesity).

Family communication style. The four types of family communication style (i.e., laissez faire, protective, pluralistic, and consensual) were predicted to have a moderating impact on the relationship between parenting practices and adolescents' attitudes, perceived social pressure, and perceived behavioral control. As with parenting style, this was tested by creating three-way interaction terms from the two dimensions of family communication style (i.e., socio- and concept-oriented communication style) and specific parenting practices. However, none of these

three-way interactions were significant. In addition, neither dimension of family communication style moderated the relationship between parenting practices and adolescents' attitudes, perceived social pressure, and perceived behavioral control.

Though no direct effects of family communication style on adolescents' attitudes, perceived social pressure, and perceived behavioral control were expected, there was a positive impact of adolescent-reported parental concept-oriented communication on adolescents' attitude toward the consumption of foods linked to a healthy weight. There were no other effects of family communication style.

Adolescents' vs. parents' perspectives. Several significant effects were found between adolescent-reported parenting variables and adolescents' attitude, perceived social pressure, and perceived behavioral control toward the consumption of both foods linked to a healthy weight and foods linked to obesity. Few significant effects were found between parent-reported parenting variables and these outcomes. Thus, it appears that adolescents' perceptions of parental styles and practices are more predictive of adolescents' attitudes, perceived social pressure, and perceived behavioral control toward target behaviors than parents' perceptions of their own styles and practices. This would suggest adolescent perceptions are most important in the relationships between parenting styles and practices and attitude, perceived social pressure, and perceived behavioral control. This finding has an intuitive appeal: adolescents' beliefs about their parents' behaviors help shape their attitudes and perceptions, and these attitudes and perceptions help shape behavior. As predicted by the TPB, the effect of parenting practices on behavior is mediated through attitude, perceived social pressure, perceived behavioral control, and intention.

Interestingly, parent perceptions appear to be most important when it comes to predicting adolescent behavior. While no significant direct effects were found between adolescent-reported parenting practices and adolescent behavior, two significant direct effects were found between parent-reported parenting practices and adolescent behavior. This suggests that parenting practices as reported by parents are more important predictors of adolescent behavior than adolescents' perceptions of these practices. If this is the case, it suggests interventions aimed at reducing adolescent obesity may benefit from adding an educational component on parenting practices targeted directly to parents, as it is parent-perceived practices that have a direct impact on adolescents' food-related behaviors.

Another possibility is that the calibration, or similarity, between parent- and adolescent-reported parenting practices should be examined more closely. Past work (e.g., Bylund et al. 2010) and results from Study 1 indicate that parents and adolescents often differ in their perceptions of parenting practices. Future work could explore whether practices reported by well-calibrated parents and adolescents have a direct impact on adolescent behavior (as parent-reported practices have in the current work) or whether these practices are mediated through attitude, perceived social pressure, and perceived behavioral control (as adolescent-reported practices are in the current work).

CHAPTER 10 – CONCLUSIONS

10.1 Summary of Findings

Study 1. Study 1 identified the relevant expectation, monitoring, and inducement/enforcement behaviors parents practice with respect to their adolescents' food choices. Four relevant expectation behaviors (i.e., object-focused rules of restriction, context-focused rules of restriction, object-focused rules of obligation, and context-focused rules of obligation), four relevant monitoring behaviors (i.e., communication with adolescents, communication with others, direct observation, and indirect observation), and five relevant inducement/enforcement behaviors were identified (i.e., talking, rewarding, controlling, self-learning, and penalties). The practices were also examined for possible trends regarding adolescents' weight status. Results from the trend analysis suggested differences between overweight and normal weight adolescents with regard to their parents' expectation, monitoring, and inducement/enforcement behaviors.

Study 2. Study 2 tested an integrated model of adolescent food choice using hypothesized relations the TPB and the literatures on consumer socialization and parental control and monitoring. The findings suggested that parenting practices contribute to adolescent food choice beyond predictors from the TPB. In addition, while parenting styles and practices as perceived by adolescents are more predictive than styles and practices as perceived by parents of adolescents' attitudes, perceived social pressure, and perceived behavioral control toward food consumption, it is parent-reported practices that have a direct impact on adolescents' behavior.

10.2 Limitations and Future Directions

Limitations.

Study 1. Study 1 examined a small sample (i.e., 20 parent-adolescent dyads) to elicit food-related expectation, monitoring, and inducement/enforcement behaviors. Although Guest, Bunce, and Johnson (2006) have demonstrated the basic elements for meta-themes emerge within the first six interviews, it is possible the interviews did not capture the full range of relevant parental behaviors relevant to the population under study. Future work eliciting parenting practices for a target group may benefit from an increased sample size.

Study 2. One limitation of Study 2 was the low reliability estimates for a few of the examined constructs. Although work on psychometric theory (Nunnally and Bernstein 1994) suggests these measures were acceptable, future work may benefit from examining additional measures.

A second limitation of Study 2 was the use of a cross-sectional, rather than longitudinal, approach. Cross-sectional data only provides an aggregate picture of the impact of the model variables on adolescent choices. Future work could apply a longitudinal perspective to address how parenting practices influence adolescents over time.

A final limitation of Study 2 concerns issues of causality. For example, while it is hypothesized that adolescent-perceived parental control increases adolescents' attitude toward foods linked to obesity, it is also possible that, as adolescents' attitude toward foods linked to obesity increases, adolescents perceive their parents to exert a higher degree of control. The data in Study 2 clearly support a relationship between adolescent-perceived parental control and adolescents' attitude toward foods linked to obesity, but the casual direction of that relationship is not clear. While the hypothesized direction of the relationship was derived from existing theory, conclusive empirical evidence for the causal nature of the relationship is beyond the scope of the current research. Future work would benefit from using an experimental design.

Future directions. One interesting finding from Study 2 was that adolescent-reported practices appeared to be more predictive of attitude, perceived social pressure, and perceived behavioral control than parent-reported practices, while parent-reported practices appeared to be more directly predictive of behavior than adolescent-reported practices. A possible direction for future work is the application of this finding to an intervention framework for adolescent food choice. Specifically, Study 2 indicates that parental expectation and monitoring behaviors have a direct impact on adolescent food choices. Intervention materials instructing parents on how to set food-related expectation and monitoring practices for their adolescents could be created and evaluated based on these findings.

Another possibility for the differential impact of parent- and adolescent-reported parenting practices on adolescent behavior is miscalibration. As demonstrated in Study 1, parents and adolescents often have different perceptions of these practices. Future work could examine the impact of parenting practices when parents and adolescents are well-calibrated with respect to parenting practices and examine whether, in this case, parenting practices have a direct impact on adolescent behavior or if their effects are mediated through attitude, perceived social pressure, and perceived behavioral control.

Another avenue for future research is to further investigate the effects of specific expectation, monitoring, and inducement/enforcement behaviors on adolescent choices. Although exploratory factor analyses in Study 2 suggested the specific parental expectation, monitoring, and inducement/enforcement behaviors (with the exception of self-learning) that comprised each behavior were all reflective of the same underlying constructs, trend analysis of Study 1 suggested there may be differences in the way these specific sub-behaviors have an

influence on adolescent weight status. Future work could more thoroughly examine these possible differences.

10.3 Conclusion

The current research integrated three theoretical perspectives (i.e., the TPB, consumer socialization, and parental control and monitoring) to create a model of adolescent food choice. While each theory has its merits, all three have limitations which suggest their integration can provide a more comprehensive understanding of the factors related to adolescent behavior. The TPB does not include social determinants of behavior beyond an individuals' perspective, general parenting styles studied in consumer socialization cannot be used to provide recommendations for parental action, and parenting practices alone ignore the context in which specific parenting actions take place. Findings from the integrated theory indicate all three theoretical perspectives play an important role in the prediction of adolescent food choices.

Research on the topic of childhood obesity has suggested individual-characteristics are the most proximal predictors of weight status, with parent and family characteristics being more distal, and societal characteristics being the most distal. Surprisingly, most research on the topic of childhood obesity in consumer behavior has focused on the impact of distal variables (such as advertising). The current research, with its focus on more proximal variables, contributes to the growing area of consumer research on childhood obesity.

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APPENDIX A: STUDY 1 RECRUITMENT E-MAIL

Participants wanted -- food choice study

We are looking for parents and their children (ages 10 - 17) to participate in hour-long interviews about their food choices. Families will be compensated \$100. Contact ahamby@vt.edu or kdanilos@vt.edu for more information.

APPENDIX B: STUDY 1 SCREENING QUESTIONNAIRE

Food Choice in Families – Interview Screening Questionnaire

The marketing department at Virginia Tech is conducting a study on food choice in families and is looking to interview several families in the area. Participants and their child(ren) will be asked to complete separate 1-hour interviews. Interviews will take place in the family's home, and each family will receive \$100 for their time. Please answer the following questions to determine if you are eligible to participate in the study:

1) Who is the primary food preparer in your household (check one)?

- Me
- My spouse
- Other (please specify)

2) Do you get any exercise (check one)?

- YES
- NO

2a) If yes, how often (check one)?

- Daily
- 2-3 times a week
- Weekly
- Other (please specify)

3) Do you smoke (check one)?

- YES
- NO

4) What is your height?

5) What is your weight?

6) What is your age?

7) How would you characterize your weight (check one)?

- Underweight
- Healthy
- Could stand to lose a few pounds
- Overweight

8) Do you have any children (check one; if no, skip to end)?

- YES
- NO

9) For each child, please answer the following questions:

Child 1

Gender (check one) Male Female

Height

Weight

Age

How would you characterize this child's weight (check one)?

- Underweight
- Healthy
- Could stand to lose a few pounds
- Overweight

Child 2

Gender (check one) Male Female

Height

Weight

Age

How would you characterize this child's weight (check one)?

- Underweight
- Healthy
- Could stand to lose a few pounds
- Overweight

Child 3

Gender (check one) Male Female

Height

Weight

Age

How would you characterize this child's weight (check one)?

- Underweight
- Healthy
- Could stand to lose a few pounds
- Overweight

10) Where do you live?

11) May we contact you to set up an interview time if you are eligible for the study (check one)?
 YES NO

11a) If yes, please list your contact information:

THANK YOU!

APPENDIX C: STUDY 1 CONSENT FORMS

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY Informed Consent Agreement (Parent)

Title of Project: Food Decision-Making in Families
Investigator(s): David Brinberg, Kim Daniloski, and Anne Hamby

I. Purpose of this Research/Project

The purpose of this study is to learn about the role of food and food choice in families.

II. Procedures

There are two potential data collection periods:

- 1) Period 1: We will ask you to fill out a screening questionnaire to determine if you are eligible for the study. This is expected to take five minutes.
- 2) Period 2: If you are eligible for the study, we will ask you and your child to participate in an audio-recorded interview in your home. This interview will take approximately one hour. You will also be asked to complete a questionnaire regarding parenting practices including disciplinary action at this time. You may refuse to answer any questions without penalty. The questionnaire will take approximately 5 minutes to complete.

III. Risks

The proposed research presents minimal risks to subjects.

IV. Benefits

This project will help us learn about the role of food and food choice in families. The results may help us learn more about how to promote healthy behaviors in families.

V. Extent of Anonymity and Confidentiality

Only Kim Daniloski and Anne Hamby (PhD students in marketing) will have access to your screening questionnaire and the audio tape of your interview. Your name will be assigned a code when the interview data are transcribed and coded. Anonymity and confidentiality are guaranteed. At no time will the researcher release the results of the study to anyone other than individuals working on the project without your written consent.

VI. Compensation

There is no compensation for completing the screening questionnaire. If you participate in an interview, you will receive \$100.

VII. Freedom to Withdraw

You are free to withdraw from the study at any time without penalty. You are free to not answer any questions that you choose without penalty.

VIII. Subject's Responsibilities

I voluntarily agree to participate in this study

IX. Subject's Permission

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

Subject signature

Date

Should I have any pertinent questions about this research or its conduct, research subjects' rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

Kim Daniloski (kdanilos@vt.edu) or David Moore (moored@vt.edu; Vice-President for Research Compliance)

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent Agreement (for Child)**

Title of Project: Food Decision-Making in Families
Investigator(s): David Brinberg, Kim Daniloski, and Anne Hamby

I. Purpose of this Research/Project

The purpose of this study is to learn about the role of food and food choice in families.

II. Procedures

We will ask your child to participate in an audio-recorded interview about food choice in your home. This interview will take approximately one hour.

III. Risks

The proposed research presents minimal risks to your child.

IV. Benefits

There are no direct benefits to your child. However, this project will help us learn about the role of food and food choice in families. The results may help us learn more about how to promote healthy behaviors in families.

V. Extent of Anonymity and Confidentiality

Only Kim Daniloski and Anne Hamby (PhD students in marketing) will have access and the audio tape of your child's interview. Your child's name will be assigned a code when the interview data are transcribed and coded. Anonymity and confidentiality are guaranteed. At no time will the researcher release the results of the study to anyone other than individuals working on the project without your written consent.

VI. Compensation

Each family will receive \$100 for the interview. This compensation is for both your interview and your child's interview.

VII. Freedom to Withdraw

Your child is free to withdraw from the study at any time without penalty. Your child is free to not answer any questions that s/he chooses without penalty.

VIII. Subject's Responsibilities

Your child agrees to participate in this study.

IX. Agreement (please check one)

I give my permission _____ I do not give my permission _____

for my child (list name)

Child's birth date

Parent's signature

Date

Parent's printed name

Should I have any pertinent questions about this research or its conduct, research subjects' rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

Kim Daniloski (kdanilos@vt.edu) or David Moore (moored@vt.edu; Vice-President for Research Compliance)

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent Agreement (Child)

Title of Project: Food Decision-Making in Families
Investigator(s): David Brinberg, Kim Daniloski, and Anne Hamby

I. Purpose of this Research/Project

To learn about how family's make choices about food.

II. Procedures

We will ask you some questions about food. We will ask these questions in your house, and it will take about an hour.

III. Risks

There is not a big risk for you.

IV. Benefits

Our questions will not help you right away. But, by answering our questions, you may help us help someone else to make better food choices.

V. Extent of Anonymity and Confidentiality

Only two people will hear the answers you give to the food questions. When we look at the questions and answers later, your name will be gone. We will not tell anyone else what you told us unless we ask you first.

VI. Compensation

Your family will receive \$100 for answering our questions. This is for both the answers you give and the answers your parents give.

VII. Freedom to Withdraw

You can stop our questions at any time. You also do not have to answer a question if you don't want to.

VIII. Subject's Responsibilities

I agree to participate.

IX. Subject's Permission

I read and understand this form, and I give my voluntary consent:

Subject signature

Date

Should I have any pertinent questions about this research or its conduct, research subjects' rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

Kim Daniloski (kdanilos@vt.edu) or David Moore (moored@vt.edu; Vice-President for Research Compliance)

APPENDIX D: STUDY 1 DEBRIEFING FORM

Thank you for participating in this research project. We value your participation and it is most helpful.

The interview in which you participated will help us better understand what role food and food choice play in families. This is academic research conducted by faculty and graduate students at the Pamplin College of Business.

Should you have any questions regarding your participation, please email: kdanilos@vt.edu or ahamby@vt.edu.

APPENDIX E: STUDY 1 INTERVIEW PROTOCOL FOR PARENTS

Introduction

Hello. I'm doing a project about the role of food in families, and I want to learn about food in your family. Is it okay if I use the tape recorder?

What are some foods you eat a lot in your house?

What are some foods you really like? What are some foods you really dislike?

What are some foods your child(ren) eat(s) a lot?

What are some foods s/he /they really like? What are some foods s/he/they really dislike?

Have the foods that you eat a lot in your house changed over time?

Have the foods your children eat a lot changed over time?

What kinds of things do you think about when you're making food choices?

- Probe: Taste? Cost? Healthfulness? Ease of preparation?

What can be expected from a typical meal at your house?

- Probe: Sit down? All together? Plan schedule around meals or plan meals around schedule?

Does the family eat snacks? When? What is a typical snack?

Expectations for parent

What kinds of expectations do you have for yourself when it comes to food?

- Probe – special preparation; anything that's forbidden; anything that's always in the house

Expectations

What do you think it's important for your children to know about food?

- Probe – That they shouldn't eat between meals? That they shouldn't eat "junk food?" → What is "junk food?" That they should eat "healthy?" → what is "healthy?"

What kinds of expectations do you have for your child(ren) when it comes to food?

- Probe – certain things to eat or not eat; certain times to eat or not eat

Are there any differences in the way you treat your children when it comes to food?

- Probe – Do you treat the boy(s) differently than the girl(s)?

Is there any disagreement between you and (other caregiver[s]) about food?

How do you talk to your child(ren) about your expectations for his/her/their food choices?

- Probe – with explanation; without explanation

Monitoring

How do you know if your child(ren) is/are following the food rules?

Do you ever talk to other parents about their expectations for their child(ren)'s food choices?

How do you know how your child(ren) is/are eating outside of your home?

Inducement

How do you make sure your child(ren) follow the food rules?

What might you say to your child(ren) if s/he/they break the food rules?

- Probe – explanation for rule; no explain for rule

How strict or lenient are you when it comes to the food rules in your house?

Do you ever use food as a reward for your child(ren) doing something good?

- Probe – good grades = special food?

What do you do if the child(ren) do(es) something bad?

Can you think of anything you do that might get in the way of your child(ren) following the food rules in your house?

- Probe – Do you send any mixed signals? Maybe you don't follow the rules?

Common Food Problems/Situations?

Next I'm going to ask about some common problems/situations that parents face when it comes to their children and food. Think back to the times when you have faced this type of problem and how you reacted.

- Your child tells you s/he doesn't want to eat because s/he is not hungry. You find out that this child ate a lot of snacks when s/he came home from school. What do you do?
- Your child wants more food after the meal is finished. What do you do?
- Your child leaves food on his/her plate. What do you do?
- Your child complains about his/her food. What do you do?
- Your child doesn't finish a certain type of food. What do you do?
- You find out your child was eating unhealthy foods outside of the home. What do you do?

What other sorts of problems/situations do you face with your child(ren) when it comes to food?

Think back to the last time you were in a grocery store with your child(ren). How were the food decisions made?

- Probe – did you let the child(ren) make some choices about which foods to buy?

Solutions

If you woke up one day and the problems you face with your child(ren)'s eating habits were somehow fixed, what changes would have happened to make this come about?

- What would have changed about the foods eaten in your house?
- What would have changed about the foods eaten away from home?
- In what ways would your family members interact differently?

Other

As a last question I'd like to get some ideas about how you feel about family food rules in general.

What do you think are the most important things a parent should say about food to their children?

What things should a parent say about food to a boy that a parent should not say to a girl?

What things should a parent say about food to a girl that a parent should not say to a boy?

APPENDIX F: STUDY 1 INTERVIEW PROTOCOL FOR ADOLESCENTS

Hi. What's your name? *Thank them for agreeing to answer some questions about food.*

What kinds of things do you like to eat?

What kinds of things do you not like to eat?

Do you eat a lot of different foods in your house, or do you mostly eat the same foods a lot?

Do you have snacks? What kind?

When do you usually eat? Why do you usually eat? Where do you usually eat?

Expectations

Do your parents talk with you about food? What do they talk about?

- Probe – Are there certain foods you're not allowed to eat? Certain foods you have to eat? Certain times you're supposed to eat?
- Probe – Do they explain why they want you to eat/not eat certain things? Do they explain why you have to eat at certain times?

Do you think the food rules in your house are fair?

Do your mom and dad follow the same food rules you do?

Do your mom and dad ever disagree about food rules?

Is there any difference in the food rules for you and the food rules for your brothers and sisters?

Inducement

What happens if you don't follow the food rules?

Are your mom and dad strict with the food rules? What about compared to your friend's parents?

Do you ever get food as a special treat when you do something good?

- What happens when you do something bad?

Situations

Think about the last time you were in the grocery store with your mom or dad. What happened?

- Probe – Did you get to choose any of the food? What foods did your parents say you could have? What foods did your parents say you couldn't have? Did they explain why?

End

Thank you very much for answering my questions! Can you go get your mom/dad so I can talk to her/him again?

APPENDIX G: STUDY 1 CODEBOOK

Codebook

Unit of analysis: The written material (i.e., phrases and sentences) in each section (i.e., the expectations, monitoring, and inducement/enforcement sections) of each transcript.

Coder ID: Indicate the ID number of the individual doing the coding.

Child/Parent ID: Indicate the ID number of the parent or child interview being coded (listed on the transcript sheet).

Expectations: The behavioral standards parents set for their adolescent.

- 01 -- Rule of restriction: Rules focused on food-related practices in which adolescents are not allowed to participate.
- 02 -- Rule of obligation: Rules focused on food-related practices that parents require of their adolescent.
- 03 -- Object-focused rule: Rules focused on a specific food/beverage.
- 04 -- Context-focused rule: Rules focused on food and meal time in general.
- 99 -- None listed.

Monitoring: The tactics parents use to determine if their adolescent is complying with expectations.

- 01 -- Communication with adolescent: Communication between parent and adolescent about the adolescent's food-related behaviors.
- 02 -- Communication with others: Communication between parent and another (NOT the adolescent) about the adolescent's food-related behaviors.
- 03 -- Direct observation: Parent directly observes the adolescent's food-related behaviors.
- 04 -- Indirect observation: Parent finds indirect evidence of the adolescent's food-related behaviors.
- 99 -- None listed.

Inducement/enforcement: The actions parents take to encourage compliance with their expectations.

- 01 -- Talking: Talking to encourage compliance with the food rules.
- 02 -- Rewarding: Rewarding behavior that is in compliance with the food rules.
- 03 -- Controlling: Controlling access to the type of food or amount of food the adolescent consumes.
- 04 -- Self-learning: Allowing adolescents to make their own choices about food so they can learn from experience.
- 05 -- Penalties: Privileges taken away or punishments assigned as a penalty for not complying with the food rules.
- 99 -- None listed.

Examples

Expectations

Rule of restriction: Rules focused on food-related practices in which adolescents are not allowed to participate. *I'm not allowed to eat in my room.*

Rule of obligation: Rules focused on food-related practices that parents require of their adolescent. *They have to eat one piece of fruit with every meal.*

Object-focused rule: Rules focused on a specific food/beverage. *They can only have soda once a week.*

Context-focused rule: Rules focused on food and meal time in general. *We always eat dinner together as a family.*

Monitoring

Communication with adolescent: Communication between parent and adolescent about the adolescent's food-related behaviors. *I talk with her about what she had for lunch.*

Communication with others: Communication between parent and another (NOT the adolescent) about the adolescent's food-related behaviors. *I ask the babysitter what kind of snack he ate.*

Direct observation: Parent directly observes the adolescent's food-related behaviors. *We usually eat dinner together, so I know what he's eating.*

Indirect observation: Parent finds indirect evidence of the adolescent's food-related behaviors. *I check her school account online to see what kind of choices she's making.*

Inducement/enforcement

Talking: Talking to encourage compliance with the food rules. *She talks to me about my lunch choices for the week.*

Rewarding: Rewarding behavior that is in compliance with the food rules. *If I eat my vegetables, I'm allowed to have dessert.*

Controlling: Controlling access to the type of food or amount of food the adolescent consumes. *If it's something I don't want them to have, I just don't buy it.*

Self-learning: Allowing adolescents to make their own choices about food so they can learn from experience. *Sometimes I let him eat it, because I know he'll feel sick afterwards. Then he'll remember not to eat it next time.*

Penalties: Privileges taken away or punishments assigned as a penalty for not complying with the food rules. *She didn't let me play with my Wii.*

APPENDIX H: STUDY 2 RECRUITMENT E-MAIL

Hello,

My name is Kim Daniloski, and I'm a PhD student at Virginia Tech. I'm working on a project investigating the way families make food choices by surveying parents and their children.

We are looking for **parents of 11-14 year-olds** and their **kids** to fill out a short (15 min) survey about family food choices. Families will be compensated **\$20**. Contact kdanilos@vt.edu for more information.

Thank you!
Kim

FOOD CHOICE STUDY

WANTED: Parents of 11-14 year-olds and their kids to fill out a short (15 min) survey about family food choices

REWARD: Get paid \$20 (per family)

CONTACT: Kim (kdanilos@vt.edu) for a

link to the survey website



Food Choice Study for Parents and Kids 11-14
15 min survey; \$20 per family
E-mail: [Kim at kdanilos@vt.edu](mailto:kdanilos@vt.edu)

Food Choice Study for Parents and Kids 11-14
15 min survey; \$20 per family
E-mail: [Kim at kdanilos@vt.edu](mailto:kdanilos@vt.edu)

Food Choice Study for Parents and Kids 11-14
15 min survey; \$20 per family
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Food Choice Study for Parents and Kids 11-14
15 min survey; \$20 per family
E-mail: [Kim at kdanilos@vt.edu](mailto:kdanilos@vt.edu)

APPENDIX J: STUDY 2 INSTRUCTIONS E-MAIL

Hi FIRST NAME,

Thanks for your interest in the food choice study!

We need **parents of 11-14 year olds** to complete a short (15 minute) survey about food choices. We will also ask some questions about parenting style and demographics. We need your **11-14 year old kids** to participate in a similar survey. Your family will receive **\$20 for successful completion of both surveys**. If you choose not to finish the surveys, your payment will be prorated.

Your family has been assigned a personal identification number for the study. That number is **XXXX**. This number will be used to confirm your payment. **DO NOT** give this number to others. We will use this number to process your payment.

To complete the survey, please follow the instructions below.

PARENTS

- * We would like the **primary food preparer** of the household to fill out the survey
- * Go to https://pamplin.qualtrics.com/SE/?SID=SV_0Gj6T1M1AxTTFkM
- * When asked for your ID number, type **XXXX**

You will first be asked to read and sign a consent form for yourself and your child. You will then be asked for you ID number a second time and asked to complete the survey.

KIDS

- * We would like **one child** between the ages of 11 and 14 to fill out the survey
- * Go to https://pamplin.qualtrics.com/SE/?SID=SV_6GxKYsp7u29vUeE
- * When asked for your ID number, type **XXXX**

You will first be asked to read and sign a consent form. You will then be asked for you ID number a second time and asked to complete the survey.

When both the parent and child have completed the survey, we will process your \$20 payment. If you choose not to finish the surveys, your payment will be prorated.

Thanks very much for your interest! We appreciate your help on this project!

Kim

Kim Daniloski
PhD Candidate
Department of Marketing
Virginia Tech
kdanilos@vt.edu

APPENDIX K: STUDY 2 CONSENT FORMS

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY Informed Consent Agreement (Parent)

Title of Project: Family Food Choices
Investigator(s): David Brinberg and Kim Daniloski

I. Purpose of this Research/Project

The purpose of this study is to learn about food choices in families.

II. Procedures

We will ask you and your child to participate in an online questionnaire. You and your child will fill out the questionnaire separately. The questionnaire will take approximately 15 minutes to complete. You may refuse to answer any questions without penalty.

III. Risks

The proposed research presents minimal risks to subjects.

IV. Benefits

This project will help us learn about food choices in families. The results may help us learn more about how to promote healthy behaviors in families.

V. Extent of Anonymity and Confidentiality

You will be assigned a code for your questionnaire. Only David Brinberg and Kim Daniloski will have access to your questionnaire responses. Confidentiality is guaranteed. At no time will the researchers release this information to anyone other than individuals working on the project without your written consent.

VI. Compensation

Upon successful completion of both the parent and child questionnaire, we will process a \$20 payment for your family. If either you or your child chooses not to finish the questionnaires, your payment will be prorated. The payment will be forfeited if the check is not cashed by April 1, 2011.

VII. Freedom to Withdraw

You are free to withdraw from the study at any time without penalty. You are free to not answer any questions that you choose without penalty.

VIII. Subject's Responsibilities

I voluntarily agree to participate in this study.

IX. Subject's Permission

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

Name

Date

Should I have any pertinent questions about this research or its conduct, research subjects' rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

Kim Daniloski (kdanilos@vt.edu) or David Moore (moored@vt.edu; Vice-President for Research Compliance)

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent Agreement (for Child)

Title of Project: Family Food Choices
Investigator(s): David Brinberg and Kim Daniloski

I. Purpose of this Research/Project

The purpose of this study is to learn about food choices in families.

II. Procedures

We will ask your child to participate in an online questionnaire about food choice in your home. This questionnaire will take approximately 15 minutes.

III. Risks

The proposed research presents minimal risks to your child.

IV. Benefits

There are no direct benefits to your child. However, this project will help us learn about the role of food and food choice in families. The results may help us learn more about how to promote healthy behaviors in families.

V. Extent of Anonymity and Confidentiality

Your child will be assigned a code for his/her questionnaire. Only David Brinberg and Kim Daniloski will have access to your child's questionnaire responses. Confidentiality is guaranteed. At no time will the researchers release this information to anyone other than individuals working on the project without your written consent.

VI. Compensation

Upon successful completion of both the parent and child questionnaire, we will process a \$20 payment for your family. If either you or your child chooses not to finish the questionnaire, your payment will be prorated. The payment will be forfeited if the check is not cashed by April 1, 2011.

VII. Freedom to Withdraw

Your child is free to withdraw from the study at any time without penalty. Your child is free to not answer any questions that s/he chooses without penalty.

VIII. Subject's Responsibilities

Your child agrees to participate in this study.

IX. Agreement

I give my permission for my child to participate.

Name

Date

Child's name

Child's birth date

Should I have any pertinent questions about this research or its conduct, research subjects' rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

Kim Daniloski (kdanilos@vt.edu) or David Moore (moored@vt.edu; Vice-President for Research Compliance)

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent Agreement (Adolescent)

Title of Project: Family Food Choices
Investigator(s): David Brinberg and Kim Daniloski

I. Purpose of this Research/Project

The purpose of this study is to learn about food choices in families.

II. Procedures

We will ask you and your parent to participate in an online questionnaire. You and your parent will fill out the questionnaire separately. The questionnaire will take approximately 15 minutes to complete. You may refuse to answer any questions without penalty.

III. Risks

The proposed research presents minimal risks to subjects.

IV. Benefits

This project will help us learn about food choices in families. The results may help us learn more about how to promote healthy behaviors in families.

V. Extent of Anonymity and Confidentiality

You will be assigned a code for your questionnaire. Only David Brinberg and Kim Daniloski will have access to your questionnaire responses. Confidentiality is guaranteed. At no time will the researchers release this information to anyone other than individuals working on the project without your written consent.

VI. Compensation

Upon successful completion of both the parent and child questionnaire, we will process a \$20 payment for your family. If either you or your parent chooses not to finish the questionnaires, your payment will be prorated. The payment will be forfeited if the check is not cashed by April 1, 2011.

VII. Freedom to Withdraw

You are free to withdraw from the study at any time without penalty. You are free to not answer any questions that you choose without penalty.

VIII. Subject's Responsibilities

I voluntarily agree to participate in this study.

IX. Subject's Permission

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

Name

Date

Should I have any pertinent questions about this research or its conduct, research subjects' rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

Kim Daniloski (kdanilos@vt.edu) or David Moore (moored@vt.edu; Vice-President for Research Compliance)

APPENDIX L: STUDY 2 QUESTIONNAIRE INSTRUCTIONS AND PRACTICE ITEM

Instructions

Many questions in this survey use a 5-point rating scale to ask you how much you agree or disagree with a statement. For example, we might ask how much you agree with the following statement:

All things considered, my attitude toward eating ice cream is positive.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
----------------------	----------	-------------------------	-------	-------------------

If you have a very positive attitude toward eating ice cream, you would select “strongly agree,” as follows:

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
----------------------	----------	-------------------------	-------	---------------------------

If you have a moderately negative attitude toward eating ice cream, you would select “disagree,” as follows:

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
----------------------	-----------------	-------------------------	-------	-------------------

If you do not have a clear attitude toward eating ice cream, you would select “neither agree nor disagree,” as follows:

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
----------------------	----------	---------------------------------	-------	-------------------

To practice using this scale, please answer the following question:

All things considered, I have a positive attitude toward eating spinach.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
----------------------	----------	-------------------------	-------	-------------------

APPENDIX M: STUDY 2 PARENTING PRACTICES MEASURES

Expectations

The next set of questions will ask you about food choice expectations in your family. Expectations are behavioral standards that parents set for their kids. You might think about them like rules.

(Assessing whether rules are present)

Are there expectations, or rules, your parent sets for you (*you set for your child*) that are related to food or beverage choices?

Yes No

There are different types of expectations, or rules, parents set for their children when it comes to food and beverage choices. The next questions will ask you about types of rules your family might have.

(Assessing object-focused rules of restriction)

There are rules that focus on **foods or beverages** I am (*my child is*) **not allowed** to eat or drink.

Strongly Disagree Disagree Neither nor Disagree Agree Strongly Agree

(Assessing object-focused rules of obligation)

There are rules that focus on **foods or beverages** I **have to** (*my child has to*) eat or drink.

Strongly Disagree Disagree Neither nor Disagree Agree Strongly Agree

(Assessing context-focused rules of restriction)

There are rules that focus on **times or places** I am (*my child is*) **not allowed** to eat or drink.

Strongly Disagree Disagree Neither nor Disagree Agree Strongly Agree

(Assessing context-focused rules of obligation)

There are rules that focus on **times or places** I **have to** (*my child has to*) eat or drink.

Strongly Disagree Disagree Neither nor Disagree Agree Strongly Agree

Are there any other types of food expectations, or rules, in your family? If so, please list them.

Monitoring (parents only)

The next set of questions will ask you about food choice monitoring practices in your family. Monitoring refers to the tactics parents use to determine if their child is complying with their expectations.

(Assessing whether monitoring tactics are present)

Are there monitoring techniques you practice to determine if your child is following rules related to food or beverage choices?

Yes No

There are different types of monitoring parents use to see if their children are following rules related to food or beverage choices. The next questions will ask you about types of monitoring you might use.

(Assessing communication with adolescents)

I talk to my child to find out about my child's food-related behaviors.

Strongly Disagree Neither Agree Strongly
Disagree nor Disagree Agree

(Assessing communication with others)

I talk to others to find out about my child's food-related behaviors.

Strongly Disagree Neither Agree Strongly
Disagree nor Disagree Agree

(Assessing direct observation)

I directly observe my child to find out about my child's food-related behaviors.

Strongly Disagree Neither Agree Strongly
Disagree nor Disagree Agree

(Assessing indirect observation)

I look for evidence to find out about my child's food-related behaviors.

Strongly Disagree Neither Agree Strongly
Disagree nor Disagree Agree

Are there any other ways you determine if your child is following rules related to food or beverage choices? If so, please list them.

Inducement/enforcement

The next set of questions will ask you about food choice inducement/enforcement practices in your family. Inducement/enforcement practices are the actions parents take to encourage their kids to comply with expectations. You might think about them like rewards or punishments.

(Assessing whether inducement/enforcement activities are present)

Are there inducements/enforcement practices your parent uses (*you use*) to encourage you (*your child*) to comply with rules related to food or beverage choices?

Yes No

There are different types of inducement/enforcement parents use to encourage their children to follow rules related to food or beverage choices. The next questions will ask you about types of inducement/enforcement practices your parent (*you*) might use.

(Assessing talking)

My parent talks to me (*I talk to my child*) about my (*his/her*) food choices if I (*s/he*) break(s) the food rules.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing rewarding)

My parent rewards me (*I reward my child*) if (*s/he*) I follow(s) the food rules.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing controlling)

My parent controls (*I control*) the foods I am (*my child is*) able to eat.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing penalties)

My parent punishes me (*I punish my child*) if I (*s/he*) break(s) the food rules.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing self-learning)

My parent allows me (*I allow my child*) to break the food rules so I (*s/he*) can learn the importance of the rule for myself (*him/herself*).

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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Are there any other ways your parent (*you*) provides inducements or enforcements to encourage you (*your child*) to follow rules related to food or beverage choices? If so, please list them.

APPENDIX N: STUDY 2 PARENTING STYLE MEASURES

The next set of questions will ask you about a parent (*child*). You may have more than one parent (*child*). When answering the questions, please think about the parent (*child*) who will fill out the questionnaire.

My parent (*I*)...

(Assessing care – negative)

...does not help me as much as I need (*do not help my child as much as s/he needs*)

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing control – negative)

...gives me as much freedom as I want (*give my child as much freedom as s/he wants*)

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing care – negative)

...seems emotionally cold to me (*am emotionally cold to my child*)

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing care – positive)

...seems to understand my problems (*try to understand my child's problems*)

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
----------------------	----------	-------------------------	-------	-------------------

(Assessing control – negative)

...likes me to make my own decisions (*like my child to make his/her own decisions*)

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing control – positive)

...tries to control everything I do (*try to control everything my child does*)

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing control – positive)

...treats me like a baby and tries to protect me from everything (*treat my child like a baby and try to protect him/her from everything*)

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing care – positive)

APPENDIX O: STUDY 2 FAMILY COMMUNICATION STYLE MEASURES

The next set of questions will ask you about a parent (*child*). You may have more than one parent (*child*). When answering the questions, please think about the parent (*child*) who will fill out the questionnaire.

My parents tell me (*I tell my child*)...

(Assessing concept-oriented)

...kids know more about some things than adults

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing concept-oriented)

...every family member has some say

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing concept-oriented)

...I (*s/he*) should look at both sides of an issue

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing socio-oriented)

...I (*s/he*) will know better when I (*s/he*) grow(s) up

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing concept-oriented)

...getting my (*his/her*) ideas across is important

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing concept-oriented)

...my (*his/her*) ideas are important in family discussions

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing socio-oriented)

...I (*s/he*) should not argue with adults

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing concept-oriented)

...I (*s/he*) should question other people's opinions

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing socio-oriented)

...his/her (*my*) ideas are right and I (*s/he*) shouldn't argue

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing socio-oriented)

...not to say things that make people angry

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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APPENDIX P: STUDY 2 THEORY OF PLANNED BEHAVIOR MEASURES

(Assessing attitude)

The next set of questions will ask you about your attitude towards eating certain foods during the week. When we say a week, we mean all 7 days of the week (i.e., Monday-Sunday).

All things considered, my attitude toward *eating vegetables/fruit/drinking non-diet soda* 4 or more times a week is favorable.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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All things considered, my attitude toward eating fast food 2 or more times a week is favorable.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing intention)

The next set of questions will ask you if you plan to eat certain foods during the week. When we say a week, we mean all 7 days of the week (i.e., Monday-Sunday).

I plan to *eat vegetables/fruit/drink non-diet soda* 4 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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I plan to eat fast food 2 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing injunctive norms)

The next set of questions will ask you what important others think you should do with regard to eating certain foods during the week. When we say a week, we mean all 7 days of the week (i.e., Monday-Sunday).

Most people who are important to me think that I should *eat vegetables/fruit/drink non-diet soda* 4 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
----------------------	----------	-------------------------	-------	-------------------

Most people who are important to me think that I should eat fast food 2 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing behavioral control)

The next set of questions will ask you about your control over eating certain foods during the week. When we say a week, we mean all 7 days of the week (i.e., Monday-Sunday).

If I wanted to I could *eat vegetables/fruit/drink non-diet soda* 4 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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If I wanted to I could eat fast food 2 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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(Assessing descriptive norms)

The next set of questions will ask you what important others do themselves with regard to eating certain foods during the week. When we say a week, we mean all 7 days of the week (i.e., Monday-Sunday).

Most people who are important to me *eat vegetables/fruit/drink non-diet soda* 4 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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Most people who are important to me eat fast food 2 or more times a week.

Strongly Disagree	Disagree	Neither nor Disagree	Agree	Strongly Agree
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APPENDIX Q: STUDY 2 FREQUENCY OF CONSUMPTION MEASURES

The next set of questions will ask you how often you eat certain foods during the week. When we say a week, we mean all 7 days of the week (i.e., Monday-Sunday).

How often do you *eat vegetables/fruit/drink non-diet soda* 4 or more times a week?

Never Rarely Sometimes Most of the Time Always

How often do you eat fast food 2 or more times a week?

Never Rarely Sometimes Most of the Time Always

APPENDIX R: STUDY 2 DEMOGRAPHIC MEASURES

How old are you?

What is your gender?

Male Female

What is your height?

What is your weight?

What is your total household income, including all earners in your household? (*parents only*)

Less than \$10,000

\$10,000-\$19,999

\$20,000-\$29,999

\$30,000-\$39,999

\$40,000-\$49,999

\$50,000-\$59,999

\$60,000-\$69,999

\$70,000-\$79,999

\$80,000-\$89,999

\$90,000-\$99,999

\$100,000-\$149,999

More than \$150,000

What is the highest level of education you have completed? (*parents only*)

Less than high school

High school/GED

Some college

2 year college degree

4 year college degree

Master's degree

Doctoral or professional