

EXPLAINING ADOLESCENT BEHAVIOR INTENTION TO CONSUME FAST  
FOOD USING THE THEORY OF PLANNED BEHAVIOR

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**Title**

Explaining Adolescent Behavior Intention to Consume Fast Food Using the Theory  
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## **ABSTRACT**

This study tested the utility of the theory of planned behavior (TPB) to explain adolescent fast-food consumption among 349 high school adolescents. Subjective norms were further investigated to identify how parents and friends influenced adolescent fast-food consumption. Study participants completed a paper-based questionnaire measuring adolescent attitude, subjective norms for parents and friends, perceived behavioral control, and behavioral intention. Path analysis revealed that TPB explained adolescent fast-food behavioral intention to consume fast food. The model identified parent subjective norms had the strongest relationship with adolescent behavioral intention to consume fast food. Parent norms differed across age and grade in high school. Older adolescents perceived more approval for eating fast food than younger adolescents. Theoretical and practical implications are discussed.

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## CHAPTER I: INTRODUCTION

Obesity is a worldwide public health epidemic (CDC, 2012a; WHO, 2000). In the U.S. alone, approximately 35 percent of American men and women are obese (Ogden, Carroll, Kit, & Flegal, 2012). More specifically, 20 percent of every state's adult population is obese, with some states' obese population exceeding 30 percent (CDC, 2012a). In addition to rising adult obesity rates, child and adolescent obesity rates have increased three-fold since 1980. Currently, 12.5 million American children and adolescents are obese (CDC, 2012b). Childhood obesity rates are growing most rapidly among adolescents between the ages of 12-19 years old (Ogden & Carroll, 2010; Ogden et al., 2012). In the upper Midwest states, childhood obesity is a serious risk for adolescents. The health issue affects approximately 12% of North Dakota and 13% of South Dakota children and adolescents (NICH, 2010). In relation to other U.S. states, North Dakota is ranked 44<sup>th</sup> and South Dakota is ranked 35<sup>th</sup> for childhood obesity prevalence, demonstrating the expansiveness of this public health issue (Trust of America's Health, 2010). Despite all the efforts curbing the health risks imposed by obesity, more Americans will be facing this health problem in the future. It is estimated that 42% of Americans will be obese by 2030 if obesity continues to grow at the current rate (Finkelstein, Khavjou, Thompson, Trogon, Pan, Sherry, & Diezitz, 2012).

This study will investigate personal and environmental factors potentially contributing to childhood obesity by using the theory of planned behavior as a theoretical model (TPB) (Ajzen, 1991). In addition, influences from parents and friends will be investigated to fully understand which group has the strongest influence on high school adolescents' to engage in unhealthy eating behaviors. Fast food has been linked to adolescent obesity, and in order for adolescent health to improve, motivation for consuming unhealthy food needs to be better understood.

In recent years, scholars started to pay a lot of attention to understand potential factors contributing to the public health epidemic of obesity. Childhood obesity scholarship has focused on identifying risk factors related to developing childhood obesity. For instance, Campbell, Crawford, and Ball (2006) found that parents who had misperceptions about their child's diet actually consumed more sweet and salty foods. Further, scholars have identified that parents' general attitude about food (Birch, 2002), parents' consumption of take-out food (Campbell, Crawford, Salmon, Carver, Garnett, & Baur, 2007), adolescents' attitude about junk food and fast food (Dixon, Scully, Wakefield, White, & Crawford, 2007), and increased television viewing among adolescent children (Harris & Bargh, 2009) are associated with increased childhood obesity rates. Because of the continued increase in obesity rates, scholars argue that a single variable is not causing the increase in adiposity (Henderson & Brownell, 2004). More research is needed that investigates combinations of personal and social factors potentially contributing to growing obesity rates (Henderson & Brownell, 2004), which may also enable scholars and practitioners the opportunity to develop theoretically-driven education campaigns.

The aim of this study focuses on investigating a combination of personal and social factors that may affect adolescent obesity. Specifically, I am interested in understanding how adolescent attitude, perceived parent and friend subjective norms, and perceived ability to control one's behavior predicts adolescents' intention to eat fast food. The study will utilize the theory of planned behavior (TPB) (Ajzen, 1985) as a theoretical framework. TPB can be an appropriate theoretical lens in helping predict and explain adolescent attitudes and behaviors related to eating fast food because TPB accounts for multiple components that influence behavior in specific contexts. TPB has been used to explain many health behaviors including eating behaviors (Kassem, Lee, Modeste, & Johnston, 2003; Maddock et al., 2008; Peng, 2009). Unique from

prior research, this research focuses on applying TPB to an adolescent population to explore the utility of TPB to explain adolescent fast food behavioral intention and to identify how parent and friend norms influence eating fast food. The findings from this research may be helpful to advance the understanding of normative influences from parents and friends on adolescents' behavioral intentions to consume fast food. The results can be used for educational programs targeting changing adolescents' fast-food eating behaviors.

This chapter begins with an overview of the physical and emotional consequences of childhood obesity, followed by an overview of research linking fast-food consumption with childhood obesity. Next, the definition of fast food is provided followed by the study's research goals.

### **Childhood Obesity**

Being overweight or obese has physical and emotional health consequences. Obese children and adolescents are often diagnosed with illnesses that are detrimental to their immediate health (Must & Strauss, 1999). Overweight children and adolescents are at risk for immediate medical issues which may include asthma, sleep apnea (Must & Strauss, 1999), Type 2 diabetes mellitus, elevated total cholesterol, gallstones (Alton, 2005), nonalcoholic fatty liver disease, insulin resistance (Daniels, 2006), or orthopedic problems such as femoral damage or bowed legs (Alton, 2005; Must & Strauss, 1999). Overweight and obese children have a higher danger of developing cardiovascular disease, osteoarthritis, and certain cancers (Must & Struss, 1999; WHO, 2000). Many of the illnesses that obese children face have lifelong impacts and can be avoided with lifestyle modifications.

In addition to physical affects, childhood obesity has the potential to negatively impact an adolescent's emotional health. Adolescents who are overweight or obese face social

stigmatization, rejection, and stereotyping (Puhl & Latner, 2007). Children are aware of the negative social effects of being overweight (Brylinsky & Moore, 1994). Rejection and stereotyping can have a negative effect on an adolescent during their teenage years when social relationships are beginning to form (Must & Strauss, 1999; Puhl & Latner, 2007). Overweight and obese adolescents face psychological consequences that include depression, loneliness, and nervousness. Along with these consequences, there is an increased likelihood that adolescents will engage in risky behaviors such as using alcohol or experimenting with sexual activity (Alton, 2005; Strauss, 2000). Taken together, adolescent obesity negatively impacts adolescents physically and emotionally during key developmental years and may have life-long impact.

Adolescent obesity is a strong indicator of adult obesity (Wilson, 2007). Adolescents who are overweight often continue into adulthood as overweight or obese adults (Alton, 2005; Must & Strauss, 1999). Medical issues typically diagnosed in adulthood, such as Type 2 diabetes, are now being diagnosed in adolescents and will be life-long medical concerns as these children age (Must & Strauss, 1999). In addition, self-esteem and body image issues that begin in adolescence continue into adulthood (Must & Strauss, 1999). Further, females face increased effects stemming from adolescent obesity. Adult females who were overweight as adolescents experience higher rates of poverty (Must & Strauss, 1999), lower income levels (Alton, 2005; Grotmaker, Must, Perrin, Sobol, & Dietz, 1993), and attain fewer years of education (Alton, 2005). The physical and emotional consequences of obesity described above are impactful not only during the adolescent years, but have the potential to influence adolescents in their adult lives. Behaviors affecting one's health are often established in childhood and adolescence (Bandura, 1998). Adolescence is a life stage characterized by increased autonomy and represents a transitional stage before adulthood. Adolescence is also a time when teens are faced

with peer pressures, expanding social networks, and begins to explore new ideas (Collins & Steinberg, 2008). Therefore, it is necessary to understand what factors influence adolescents to develop eating patterns that may have immediate and long-term physical and emotional consequences.

During adolescence, young people begin to make more personal choices, define personal goals, and have more control over their personal activities (Noom, Dekovic, & Meeus, 2001). The teen years are a time when most adolescents begin to make more personal decisions about clothes and leisure activities, work part-time jobs, and have more disposable income to purchase products of their liking. Fast food is the top-ranked category adolescents spend their money on, ahead of clothes, cell phones, and music (Darling, Reeder, McGee, & Williams, 2006). Research has shown that, on any given day, 30 percent of American children eat fast food (Bowman, Gortmaker, Ebbeling, Pereira, & Ludwig, 2004).

### **Childhood Obesity and Fast Food**

Fast food is a major contributor to adolescent obesity (Bowman et al., 2004). Children who eat fast food consume more total calories, more fat, carbohydrates, sugar, and soda and less milk, fruits, and vegetables compared to children who do not eat fast food (Bowman et al., 2004). Consuming fast food more than two times per week has been linked to increased body weight and serious health consequences (Pereira et al., 2005; Taveras et al., 2005; Thompson, 2004). Eating fast food beyond two times per week has the potential to add up to six pounds of body weight per year (Bowman et al., 2004). Environmental factors such as increased meal and portion sizes, advertisements promoting high-calorie fast food, and the easy accessibility to fast-food restaurants can promote weight gain and fast-food consumption (Brownell, 2002; Henderson & Brownell, 2004).

Scholars have debated the definition of “fast food” and have not reached a consensus on one definition. The lack of a clear cut definition for fast food arises because full-service restaurants serve products such as hamburgers, French fries, and pizza that are often served by conventional fast-food establishments (Chou, Grossman, & Saffer, 2006). Some scholars (Chou et al., 2004; Jeffery, Baxter, McGuire, & Linde, 2006) have used the Standard Industry Code (SIC), a governmental classification system grouping similar businesses together, to serve as an initial organization system to study fast-food restaurants. Definitions have been further narrowed based on the type of food served (i.e. roast beef, pizza, etc.) (Jeffery et al., 2006), how the food was prepared (Chou et al., 2004), and by the way customers are served (Currie et al., 2009). Examples of fast-food restaurants that have been researched include McDonald’s, Burger King, Kentucky Fried Chicken (Elbel et al., 2011), Hardee’s (French et al., 2001), Long John Silver’s, and Taco Bell (Jeffery et al., 2006).

Typical fast-food fare is defined as cheeseburgers, hamburgers, French fries or fried potatoes, fried chicken, fried fish, fried chips, pizza, soft drinks, tacos, and milk shakes (Bowman et al., 2004; Elbel et al., 2011; Jeffery, 2000; Jeffery et al., 2001). While fast-food restaurants have started serving healthier menu options, the top-selling products are still hamburgers and cheeseburgers (French, Harnack, & Jeffery, 2000). The definition adopted for this study defines fast food as the typical fast-food fare purchased from quick service restaurants with disposable wrappers and has a high-fat, high-calorie, and high-carbohydrate content (Brown et al., 2004; Chou et al., 2004).

The number of fast-food restaurant locations such as McDonalds has rapidly increased, making fast food easily accessible and available. Adolescents who go to school within one-tenth of a mile of a fast-food restaurant were associated with a 5.2% weight gain (Currie, Della Vigna,

Moretti, & Pathania, 2009). Adolescents who gained weight had an average increase of 30 to 100 calories each day during the school year (Currie et al., 1009). Ebbeling and colleagues (2004) observed similar fast-food effects on adolescents. Overweight adolescents consumed an average of 400 additional calories per day when they ate fast-food meals versus adolescents who were an ideal weight. The authors found adolescents who were within an ideal weight range adjusted their daily caloric intake after eating fast-food meals and were able to maintain a healthy weight (Ebbeling, Sinclair, Garcia-Lago, Feldman, Ludwig, 2004). Overweight adolescents not only consumed more calories throughout the day, they also over-ate during their meals (Ebbeling et al., 2004).

Steps to help educate adolescent consumers about fast-food nutritional values have not produced encouraging results. In an experimental study, adolescents were asked to order three meals, one from McDonald's, one from Panda Express, and one from Denny's (Yamamoto, Yamamoto, Yamamoto, & Yamamoto, 2005). The study was to identify how nutritional information influenced adolescent fast-food choices. The authors found that when no nutrition information was included on the menu, male adolescents consistently ordered meals containing higher calorie and fat content than females. However, menus containing calorie and fat information did not influence males or females to adjust their caloric intake. Results indicate that 80 percent of adolescents did not adjust their meal choices when calorie and fat information for their meal was provided (Yamamoto et al., 2005). This research demonstrates that nutrition information does not influence adolescents between the ages of 13-19 to adjust their food intake and make healthier choices. It is necessary to identify what factors may affect adolescents to make unhealthy food choices and understand how adolescents can be reached and influenced to make healthier food choices and lead healthier lives.

Elbel, Gyamfi, and Kersh (2011) found similar results and argue that nutrition labels do not influence adolescents to make healthier fast-food choices. Adolescents reported noticing nutrition labels yet purchased the same number of calories before and after the fast-food nutrition label requirement mandated by the Patient Protection and Affordable Healthcare Act of 2010 (Elbel et al., 2011). The authors report that the average meal purchased by adolescents contained 645 calories, which are more calories than expected to be consumed in a single meal. Elbel et al. (2011) also found evidence that adolescents who visited a fast-food restaurant with a parent or guardian did purchase fewer calories than adolescents who visited the restaurant alone (Elbel et al., 2011).

Parents are aware of their ability to influence their children's eating patterns. Parents are the primary meal planners for children and often are the decision makers when it comes to eating meals away from the home (i.e. going out to eat or take-out food) (Campbell et al., 2007). In addition to typically being the primary decision-maker for going out to eat, parents are also the primary controller of food available in the home to adolescents through grocery shopping (Campbell et al., 2007). Parents have the power to significantly influence the food their children eat by purchasing healthier take-out options or by restricting the amount of unhealthy food available in the home. However, parents feel other social factors are equally influential to persuade adolescents to consume unhealthy food (Childers & Hoy, 2012). These factors include fast-food advertisements, lack of correct knowledge about healthy snacks, (Hesketh, Green, Salmon, & Williams, 2005), or peer pressure to eat unhealthy foods (Anzman, Rollins, & Birch, 2010).

Adolescence is marked by a struggle for autonomy from parents, the development of more friendships, and exposure to peers who influence adolescents' eating habits (Anzman et al.,



2010). College freshmen identified eating was a social activity they typically engaged in when with friends (Childers, Haley, & Jahns, 2011). Even if students had recently eaten, adolescents would eat again if it meant socializing (Childers et al., 2011). In addition, social eating typically involved fast food and other high-fat options (Childers et al., 2011). In summary, evidence has identified that friends and parents can influence unhealthy eating habits. While it is possible for parents and friends to positively or negatively influence eating habits, it is unclear which group is more dominant in influencing adolescents to engage in unhealthy eating patterns.

### **Research Goals**

This study aims to explore how personal attitudes, subjective norms, and perceived behavioral control predict adolescents' intention to engage in unhealthy eating patterns. The theory of planned behavior (TPB) (Ajzen, 2005) provides a theoretical lens to investigate environmental and personal factors that may influence eating choices. Using this theoretical framework, this study will be able to identify which factor is more salient in influencing adolescents to consume unhealthy amounts of fast food.

Adolescents, specifically, those who are 13-18 years old, is the population that this research focuses on. Adolescents gain autonomy and the ability to govern their own actions as they progress through their teens (Collins & Steinberg, 2008). Therefore, it is meaningful to investigate the influences of adolescents' attitudes, the subjective norms around them, and perceived behavioral control related to frequent fast food consumption in this age group.

Examining these factors may help curb the growing rate of adolescent obesity by identifying the catalyst for frequently consuming fast food. Understanding what motivates and encourages adolescents to consume fast food may help prevent adolescents from transitioning into adulthood as obese adults. If the upward national trend of adolescent obesity continues to

grow, the current generation of adolescents will have to deal with medical issues, such as Type 2 Diabetes or skeletal disfigurement, for their entire adult life.

The results from this research may be meaningful and useful for the medical community and public health organizations because they addresses both the personal and the environmental factors that can influence adolescents' fast-food eating behavior. From the theoretical perspective, the ultimate goal of this study is to test the TPB and its utility in explaining adolescents' behavioral intention related to consuming fast food. The application of theory to this specific behavior and population will provide insight about beliefs and behaviors that need to be understood in order to create effective interventions to address childhood obesity. This study will also explore specific referent groups adolescents typically interact with and how norms from parents and norms from friends are related to adolescents' behavioral intention to consume fast food. I hope the findings from this study can contribute to research explaining adolescents' unhealthy eating behavior and also advance our understanding of the potential influences of parents and peers on eating patterns.

The next chapter, Chapter Two, will review relevant and important literature regarding TPB. First, research investigating adolescent attitudes will be reviewed. Next, research exploring subjective norms will be described followed by perceived behavioral control and behavioral intention. The study's guiding hypotheses and research questions are identified at the end of Chapter Two. Chapter Three describes the study's quantitative design and measures. Chapter Four discusses the study's results, followed by Chapter Five, which discusses the findings and limitations.

## CHAPTER II: LITERATURE REVIEW

The theory of planned behavior (TPB) (Ajzen, 1985) is used as a theoretical framework to guide this research. TPB can be an appropriate theoretical model to simultaneously investigate personal and social factors that can affect adolescents to eat unhealthy food. This model allows scholars to investigate multiple factors simultaneously, which provides an avenue to identify combinations of variables that may be interacting. TPB is a robust theory capable of predicting healthy eating habits (e.g. Emanuel, McCully, Gallagher, & Updegraff, 2012) and has served as the guiding framework for communication campaigns promoting healthy eating and exercise behaviors (Maddock et al., 2008). TPB has also demonstrated usefulness in predicting and explaining adolescent health behaviors (Murnaghan et al., 2010).

### **Conceptualization**

The theory of planned behavior (Ajzen, 1985), an extension of the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980), explains the linear relationship from attitudes, subjective norms, and perceived behavioral control leading to behavioral intentions. Attitude is the positive or negative feeling about a behavior. Subjective norms are the perceived social pressures a person feels to engage, or not engage, in a specific behavior. Social pressures originate in two distinct ways. First, social pressures may stem from the frequency, or perceived frequency, a behavior is performed by specific people or a specific group, which are referred to as descriptive norms (Ajzen & Fishbein, 2005; Cho, 2006). The second way social pressures emerge are through injunctive norms, which are the perceived approval or disapproval of a behavior by specific people or within a specific group (Cho, 2006). The third factor, perceived behavioral control, adds to the theory's predictive power by addressing personal factors such as self-efficacy and perceptions of control over the behavior. Behavioral intention, the willingness

to perform a specific behavior, is a function of attitude, subjective norms, and perceived behavioral control and the best predictor of behaviors under volitional control (Ajzen & Fishbein, 1980; 2005). Research shows that behavioral intention can be predicted from attitudes, subjective norms, and perceived behavioral control (Armitage & Conner, 2001) and have explained 40-64 percent of behavioral variation (Kassem, Lee, Modeste, & Johnston, 2003; Smith-McLallen, Fishbein, & Hornik, 2011). However, the weight of each construct will differ among various groups, depending on the population's overarching beliefs associated with the behavioral. For this study, TPB will serve as a theoretical model to explain personal and environmental influences on adolescents' behavioral intention for fast-food consumption. Understanding influential elements of unhealthy eating patterns may help scholars and public health organizations continue to address adolescent obesity.

Adolescent populations have distinctive social qualities that may influence how TPB explains teenage behavior. Youth spend a significant amount of their time in high school interacting with peers, friends, and school administration and teachers. As a result, beliefs and health related behaviors may be adopted from the various sources of exposure. TPB has demonstrated ability to serve as a theoretical foundation for school communication interventions addressing adolescent health behaviors.

Murnaghan and colleagues (2010) designed a study assessing the feasibility of using TPB to design one campaign addressing multiple health related behaviors adolescents must be aware of. In their study, students in 7<sup>th</sup> through 9<sup>th</sup> grade completed a paper-based survey measuring attitude, subjective norms, and perceived behavioral control to establish participants' baseline for these constructs. The authors modeled the survey after Ajzen (2004) survey guidelines to test TPB. The research revealed that TPB was useful in explaining adolescent

behavioral intention to consume fruits and vegetables and their intention to remain smoke free. After one month, students completed a second survey measuring the students' behavior. Their results demonstrated that subjective norms had a statistically significant relationship with both eating fruits and vegetables and staying smoke free. The authors argue one possible reason for the significance of subjective norms is that adolescents may place higher importance on the approval and actions of peers and friends, making subjective norms a significant part of adolescents' lives (Murnaghan et al., 2010). They also investigated subjective norms associated with being smoke free for siblings, parents/guardians, friends, and teachers. The normative behavior for family (siblings and parents) was stronger than for friends and teachers (Murnaghan et al., 2010). The results of their study demonstrate that while subjective norms is often found to be the weakest of the theory's three independent constructs, within the adolescent population, normative behavior may have more influence for adolescents than for adults. Further, the authors suggested TPB can be useful in explaining behaviors that should be increased, such as fruit and vegetable consumption, and behaviors that should be avoided, such as staying smoke free (Murnaghan et al., 2010). The findings that TPB is an effective model to identify and understand smoking related intention and behavior is useful to the present study because it demonstrates the ability of the theory to explain increasing healthy behaviors and also behaviors to be reduced or avoided.

In order to fully understand how to address obesity, Rhoades and colleagues conducted a qualitative study using the TPB as a guiding framework to interview obese adolescents about their attitudes toward obesity, the perceived subject norms of specific referent groups for losing weight, and perceived behavioral control to lose weight and eat healthy food. Obese adolescents held positive attitudes toward losing weight but reported previous weight loss strategies failed to

achieve an ideal weight (Rhoades, Kridli, & Penprase, 2011). Rhoades et al. (2011) argue that subjective norms were closely related to family members providing support for losing weight. The authors found that adolescents often felt if they were to lose weight, they would be teased less, may gain more friends, and would have higher confidence and self-esteem. Obese adolescents cited the taste of healthy food, controlling their food intake, the availability of junk food, and access to TV and video games were barriers they faced to lose weight (Rhoades et al., 2011). One limitation with Rhoades et al. (2011) study was injunctive norms were the only type of normative behavior explored, leaving a gap in understanding descriptive norm behavior. Even so, the qualitative findings are still informative for obesity and TPB research.

Rhoades and colleagues (2011) qualitative findings revealed that parents and friends were identified most frequently among obese adolescents as important referents for losing weight. While it is not surprising that parents and friends were key referents for obese adolescents, it is necessary to identify how these specific referent groups demonstrate descriptive and injunctive normative behavior among adolescents. Rhoades and colleagues (2011) suggest that one practical approach to helping obese adolescents lose weight is for intervention messages to promote fun activities that could be engaged in with friends and that intervention messages should avoid promoting losing weight (Rhoades et al., 2011). Caution should be used when interpreting the application of these qualitative findings to intervention messages. In order to fully understand a specific population's beliefs, attitudes, subjective norms, and perceived behavioral control, research examining all of the constructs from a population sample is needed. Ajzen (2002) recommends that in order to holistically understand normative behavior surrounding a phenomenon, both injunctive and descriptive norm items must be included in the research.

TPB has demonstrated usefulness as a guiding theory for media campaigns promoting increased fruit and vegetable consumption and increased activity levels among the campaign target audience. Media campaigns grounded in theory are more effective in producing attitudinal change, and are more effective in producing behavior changes than campaigns are not based on a theoretical foundation (Noar, 2006). TPB served as the theoretical framework for Maddock and colleagues (2008) to understand the young adult core beliefs about exercising and eating five fruits and vegetables a day. As a result, Maddock et al. (2008) found that the target audience was already consuming fruits and vegetables, but not meeting the minimum recommendations of five servings of fruit and vegetables a day because of lack of time to prepare these foods. The researchers also identified that the target population was not physically active because of time barriers to exercising that prevented them from incorporating this health related behavior. Collectively, the results demonstrated that perceived behavioral control for eating fruits and vegetables and exercising was the primary theoretical construct that explained the lack of adoption of the healthy behaviors.

Maddock et al. (2008) identified that messages needed to address perceived behavioral control for both increasing fruits and vegetables and engaging in physical activity. The authors developed individual media campaigns were developed to educate the target audience about how to incorporate 30 minutes of walking per day and how to increase fruit and vegetable consumption by one piece per day (Maddock et al., 2008). Their results demonstrate that TPB helps explicate the core belief held by a population and the necessity to understanding that belief prior to campaign development. Had the researchers not identified perceived behavioral control as the barrier to exercise, a campaign message designed to promote a positive attitude about

exercise by focusing on the health benefits would have failed to generate behavioral modifications among the target audience.

Gender influences the ability of TPB to predict behavior and behavioral intention to engage in health-related behaviors. Females typically consume more fruits and vegetables than males. Emanuel and colleagues (2012) used the TPB to help explain the variation in fruit and vegetable consumption across genders. In that particular study, a large portion of females reported eating more than the recommended number of servings of fruits and vegetables and had a more favorable attitude toward eating fruits and vegetables than males (Emanuel, McCully, Gallagher, & Updegraff, 2012). Results revealed that for both genders, perceived behavioral control served as a barrier to eat fruits and vegetables. While the subjective norm variable was not statistically significant, males perceived stronger subjective norms than females for eating fruits and vegetables (Emanuel et al., 2012). The authors found that TPB model explained over 80% of the variation in the differences between male and female consumption of fruits and vegetables. More importantly, gender differences explained the variation in the theory's constructs. For females, attitude was the strongest theoretical predictor for eating fruits and vegetables, and perceived behavioral control was the strongest for males.

One limitation of the findings from Emanuel and colleagues (2012) is that only injunctive norms were assessed failing to include descriptive norms. With exclusion of descriptive norms from the subjective norm construct, all aspects of normative behavior were not included in this particular assessment of normative behavior. The stability of the results identifying gender influences on fruit and vegetable consumption are called into question because a key aspect of normative behavior is missing from the model Emanuel et al. (2012) tested.



TPB is a valuable theoretical model to explain adolescent health related behavior. Previous research has been insightful in helping illuminate how different behaviors among particular populations can be explained by the TPB. The relative significance of each of the theoretical constructs holds different weight depending on the population and specific phenomenon being explored.

The current study uses TPB to explain behavioral intention of adolescents to consume fast food. Two contributions are made to previous research by this study. First, the primary focus of this study is to understand adolescent behavioral intention associated with eating unhealthy food. Previous studies have investigated how to increase fruit and vegetable intake (Maddock et al., 1008), which is necessary to maintain a healthy weight, but eating fruits and vegetables, is only one portion of addressing obesity. If adolescents increase their fruits and vegetables it does not mean they will decrease their consumption of unhealthy food. Therefore, understanding how personal and environmental factors influence adolescent consumption of food that carries little nutritional value and is often high in sugar, fat, and carbohydrates is necessary to address problematic behaviors that may be contributing to childhood obesity.

Second, subjective norms from both parents and friends will be investigated to identify the normative influence on eating fast food. This study will help identify the normative behavior associated with these two groups. Next, prior research investigating the TPB independent constructs (attitude, subjective norms, and perceived behavioral control) and the dependent construct (behavioral intention) will be reviewed in relation to this study's context.

## **Prior Research**

### *Attitude*

Attitudes about a specific behavior are developed based on the outcome expectancies related to the behavior. When the outcome expectancy is positive, the behavior will be positively evaluated and a positive attitude toward the behavior is likely to develop (Ajzen & Fishbein, 2005). Alternatively, if the attitude held toward a behavior is negative, the behavior may be evaluated in negative ways, such as being a foolish or unnecessary behavior.

Adolescent attitudes about food may be influenced by advertising. A 2007 study conducted by Dixon and colleagues discovered that adolescents who were heavy commercial television watchers had positive attitudes about junk-food, chocolate, and fast food and reported consuming these products more often than adolescents who watched minimal amounts of commercial television. In addition, adolescents reported liking junk-food, chocolate, and fast food more than other adolescents who reported watching minimal amounts of television. Heavy television watchers had an inflated perception about how often other teens consumed these products and thought these foods were healthier than they actually were (Dixon et al., 2007). These results demonstrate that advertisements have the ability to influence adolescent attitudes in a way that could lead to major health consequences. The results also demonstrate that adolescents who are heavy consumers of commercial television may eat a higher amount of unhealthy foods, which contributes to weight gain.

One potential reason children who are heavy commercial television watchers have an increased liking of unhealthy food such as chocolate and fast food is that a significant percent of television food advertisements promote unhealthy products. Advertisements airing during children's programs and on primetime television promote energy-dense food that has little

nutritional value (Henderson & Kelly, 2005; Stitt & Kunkel, 2008). Content analyses have revealed that the majority of food advertisements promote candy, pop and other sugary drinks, chocolate, and fast food (Henderson & Kelly, 2005; Stitt & Kunkel, 2008; Zuppa, Morton, & Mehta 2003). Producers of these food products have argued that advertisements do not have the ability to influence people to eat unhealthy food but simply influence the brand they select. However, Hoek and Gendall (2006) argue that the content and frequency of advertisements promoting energy-dense food will reinforce viewers' unhealthy eating habits. Ultimately, whether it is the act of watching television or the content, research has linked increased amounts of screen time to childhood obesity. This means that heavy television watchers are not only engaging in a sedentary activity, their attitude toward high-fat, high-sugar foods may be influenced as well. Another element influencing adolescent attitudes about food may also come from parents and the home environment.

Parents' attitude about healthy food and providing fruits and vegetables has a significant influence on adolescent obesity. Parents' who believed tracking their child's eating and drinking habits would lead to weight loss predicted if parents monitored the children's food intake (Andrews, Silk, & Eneli, 2010). Further, not all parents believed eating healthy food would reduce their children's weight; parents who held this belief were less likely to track their children's food intake (Andrews et al., 2010). Andrews et al. (2010) recommended targeting parents with educational messages aimed at changing attitudes about providing healthy food and the benefits of tracking their child's daily calories. Their research suggests that parents' attitude about how to help their child manage their weight and make healthy choices influences the child's daily eating habits. If parents view tracking the amount of calories their child consumes or requiring their child to eat fruit and vegetable as a negative behavior, the TPB explains that

parents will not engage in the behavior (Andrews et al., 2010). However, their results reveal that if parents value and believe tracking food and consuming fruits and vegetables are important health behaviors, they will be inclined to monitor their child's behavior. Therefore, when parents actively demonstrate tracking food intake and model eating healthy food like fruits and vegetables, children will learn how to make healthy lifestyle choices and adopt positive attitudes toward those behaviors. Parents also have the power to influence the child's attitude about living an active lifestyle.

Parents' attitude about watching television may be a contributor to a child's attitude about health related behaviors. In one study, over half of the parents participating indicated television was a contributor to childhood obesity (Vandebosch & Van Cleemput, 2007). Parents felt television allowed their children to remain in-active, be exposed to a large amount of advertisements promoting unhealthy food, and that their children often eat unhealthy food while watching television. The same study identified that older parents and parents with higher education levels held stronger attitudes about television being a contributor to childhood obesity. Older, more educated parents reported placing restrictions on the amount of time their child watched television as well as restricting snacking while watching television. In addition, obese children in the study were found to watch significantly more television than children with an ideal weight range (Vandebosch & Van Cleemput, 2007). Parents' attitude about the role of television and snacking impacts their child's healthy, both positively and negatively. Parents who engage in healthy lifestyle choices such as encouraging exercise and restricting the amount of snack foods consumed model healthy choices to their children, which may help prevent childhood weight gain. When a child sees their parents being active and enjoying eating healthy food, the child may begin to adopt a positive attitude about healthy activities. However, the

converse is true as well. When children see their parents engage in and enjoy unhealthy lifestyle choices such as being sedentary or eating fast-food, the child may learn to adopt similar attitudes about unhealthy behaviors.

Attitudes are malleable and change over time as a person is exposed to more information (Ajzen, 2005). Adolescents are exposed to nutrition information from parents, friends, and through the media, all of which have the power to influence attitudes. TPB provides a theoretical model to investigate and understand adolescent behavior related to eating unhealthy food by simultaneously investigating environmental constructs influencing adolescents. Therefore, the TPB will be tested for its ability to explain and predict adolescent eating behavior. Research shows that advertisements have the power to influence attitudes toward food. In addition, research has identified that parents may influence their child's attitude about healthy and unhealthy food. While it is necessary to understand what influences the development of attitudes, it is equally essential to identify what adolescent attitudes are toward unhealthy food.

### *Subjective Norms*

Subjective norms are the perceived social pressures a person feels to engage in a specific behavior and may come from specific people such as friends or family or from groups such as college campuses or sports teams (Ajzen & Fishbein, 2005). Subjective norms are based on perceptions of how often a behavior is engaged in and perceptions of approval about the behavior. Norms may be influenced based on perceived proximity of friends or groups a person identifies with. To be specific, norms may develop from proximal (e.g. close friends or parents) or distal (e.g. peer groups, university community) relationships, and depending on how close one perceives themselves to be to the referent group, will influence an individual's behavior.

Therefore, there are four types of subjective norms: proximal descriptive norms, proximal injunctive norms, distal descriptive norms, and distal injunctive norms.

*Proximal and Distal Subjective Norms.*

An adolescent's friends and groups they identify with have more influence over their behavior than people and groups who they perceive to be socially distant. One reason socially close groups have more influence over behavior is that people often identify with specific groups they consider to be their friends or people they interact with frequently. As a result, behaviors and lifestyles may be influenced by these relationships creating proximal norms. A considerable amount of scholarly attention has focused on subjective norm research related to college student binge drinking, and most recently in exercise related behavior. This line of research has developed clear conceptual definition for proximal and distal subjective norms and identified how each norm influences unhealthy behaviors.

Cho (2006) found that proximal norms from close friends were more influential on students' binge drinking behavior than distal college campus norms. Also, descriptive norms were more influential than injunctive norms in influencing college students to binge drink. This means that norms originating from proximal relationships and norms produced by the actual performance of a behavior (e.g. descriptive norms) were more influential for college students to engage in unhealthy, risky behavior. Proximal descriptive norms explained that the behaviors of college students' friends influenced their binge drinking (Cho, 2006). The findings explain how the prevalence of a behavior among proximal relationships is more influential than the norms from those who are socially distant.

Proximal relationships have the power to influence an individual to engage in healthy behaviors such as exercise or making healthy food choices. Yun and Silk (2011) investigated

proximal and distal norms among college students and their behavioral intention to exercise. The authors found that proximal norms from peers were more important than distal norms from other college students in predicting a college student's behavioral intention to exercise (Yun & Silk, 2011). Their study contributes to a growing body of research establishing the conceptual difference between proximal and distal norms and how specific referent groups have the power to influence behavioral intention differently. Proximal norms can also be used to describe how close relationships can influence the development of unhealthy behaviors, especially among adolescents.

Adolescent eating patterns and physical activity are often similar among friendship circles and family members. First, friends share similar TV watching habits and have similar active or sedentary lifestyles (de la Haye et al., 2010). In relation to eating, de la Haye and colleagues (2010) identified males are more likely to mimic their friends' fast-food eating patterns. Peer influence of healthy and unhealthy behaviors occurs among friendship circles. As a result, peer pressure to over-eat, consume unhealthy food, or to live a sedentary lifestyle create norms among friendship circles that promote weight gain. Second, spouses and siblings also have the power to influence eating patterns. Christakis and Fowler (2007) found in their 32 year longitudinal study that an individual's chance of becoming obese increased by 40 percent if their spouse or a sibling became obese. The findings from de la Haye et al. (2010) and Christakis and Fowler (2007) demonstrate that proximal relationships have the power to negatively influence health behaviors. Seeing a friend or family member gain weight may desensitize a person and make them more accepting of weight gain. In addition, it may influence a person to adopt unhealthy behavioral patterns that have life-long negative effects.

Obesity is often related to over-eating, eating unhealthy food, and living an inactive life. Friends often have similar lifestyles and have more influence over each other than individuals who are socially distant. Therefore, this study focuses on two distinct proximal groups, friends and parents, to investigate which proximal group has more influence over adolescent health behaviors related to unhealthy eating. In addition to understanding how proximal norms influence adolescents, it is necessary to understand how descriptive norms and injunctive norms related to unhealthy food influence adolescent behavior.

*Descriptive and Injunctive Norms.*

Descriptive norms are related to the type of behaviors a specific referent group engages in and injunctive norms are related how the specific referent group evaluates the behavior. Specifically, descriptive norms are the actual behaviors and injunctive norms are the perceived beliefs about how a person should act. Previous research has identified that descriptive proximal and distal norms are often stronger influencers of behavior than injunctive proximal and distal norms (Cho, 2006). Therefore, the performance of an actual behavior by people one is close with has more normative influence than the perceive approval or disapproval of that behavior. For instance, parents eating five servings of fruits and vegetables daily have the potential to be more influential on a child's behavior than if the child perceives their parents to approve of eating five daily servings.

The eating behaviors parents demonstrate and model shapes children's food preferences and future food choices (Birch, 2002). Children who see their parents repeatedly consuming and enjoying high-fat or high-sugar food are more likely to develop preferences for those types of food (Fisher, Stinton, & Birch, 2009). Alternatively, children who see their parents consuming fruits and vegetables are more likely to eat those healthy foods, especially if parents model the



behavior during evening meals (Campbell, Crawford, & Ball, 2006). Parents shape the home environment where children learn how often to eat and what food is “edible” and “disgusting” (Birch, 2002, p. 76). As children enter into adolescents, they are exposed to peer influences that shape their eating habits.

Peer influence was found to be one of the primary factors influencing college freshman weight gain. Adolescents between the ages 18-20 reported consuming unhealthy food, such as ice cream, pastries, and pie in a social setting simply because their friends were eating those foods (Childers et al., 2011). Furthering their unhealthy eating habits, college freshman reported eating with their friends even if they had already eaten and were not hungry (Childers et al., 2011). In general, adolescents were not simply eating unhealthy food, but also consuming excess calories by overeating with their friends (Childers et al., 2011). These findings from Childers and colleagues reveal how proximal descriptive norms operate within friendship circles and how friends’ behaviors have the power to negatively influence eating patterns.

Parents and friends influence adolescent eating patterns through subjective norms. As relationships are established, social norms about what and when to eat are learned through repetitive modeling. Friends also have the ability to significantly influence adolescents to overeat and frequently consume unhealthy food. It is necessary to investigate specific norms in order to understand the level of normative influence adolescents experience related to unhealthy eating. Inspecting how proximal norms from friends and parents influence adolescents will identify the primary influencer of unhealthy eating. This knowledge will help future campaigns target specific types of social norms in an attempt to reduce the amount of fast food adolescents who are at risk of developing obesity consume.

### *Perceived Behavioral Control*

Perceived behavioral control identifies the amount of self-efficacy adolescents have in their ability to make healthy choices and the level of controllability they perceive to have over their food choices. Perceived behavioral control is the person's perceptions about their capability to perform a behavior (self-efficacy) and the amount of controllability (control) related to the behavior (Ajzen & Fishbein, 2005). When people are confident they can perform and control a behavior, they are more likely to act in a manner that is consistent with their behavioral intentions (Ajzen & Fishbein, 2005). Theoretical research has established that self-efficacy and controllability are distinct constructs and both are needed to help predict behavioral intention (Motl et al., 2002).

Adolescent females' behavioral intention to drink non-diet soda was significantly influenced by attitude, subjective norms, and perceived behavioral control (Kassem et al., 2003). Perceived behavioral control was the most salient predictor of drinking soda and was influenced by the availability of soda within the adolescent's home (Kassem et al., 2003). Availability within the home made it easier for adolescents to frequently drink soda (Kassem et al., 2003). In addition, female adolescents who had money to purchase soda were more likely to regularly drink soft drinks when access was available (Kassem et al., 2003). Female adolescents reported that they felt they had moderate knowledge about how regularly drinking soda would affect their health, and felt it was important for them to fully understand health risks (Kassem et al., 2003). Findings from this study demonstrate how availability of a product in the home and the ability to purchase the product for themselves increases consumption of an unhealthy beverage.

In another study, self-efficacy to make healthy decisions was an independent predictor of adolescents' calcium intake. Female adolescents who felt they were able to make healthy

choices consumed more calcium, ate breakfast regularly, and had a positive attitude toward health and nutrition (Larson, Story, Wall, & Neumark-Sztainer, 2006). Alternatively, male adolescents' calcium consumption was influenced more by perceptions of social support for consuming milk than perceptions of self-efficacy (Larson et al., 2006). For both males and females, calcium intake was inversely related to fast-food consumption (Larson et al., 2006). Findings from Larson et al. (2006) identified gender variation in self-efficacy and the inverse relationship between calcium and fast food.

TPB serves as the theoretical framework for this study because it includes personal and environmental influences to predict the dependent variable, behavioral intention. The theory provides a model to investigate how adolescents' personal attitudes, subjective norms from friends and parents, and adolescents' level of perceived behavioral control and self-efficacy influences their behavioral intention. Based on previous research, the conclusion can be drawn that adolescents are aware of the health risks associated with fast food, yet choose to continue to eat unhealthy amounts of fast food.

Additional research exploring issues surrounding adolescent obesity is needed to better understand the adolescent perspective of an illness affecting a significant amount of youth. In order to reach adolescents through education campaigns and reduce their consumption of fast food, influential factors must be understood.

### *Behavioral Intention*

Behavioral intention is designed to identify the amount of motivation a person has to engage in a specific behavior (Ajzen, 1991). A person's intention to engage in a volitional behavior can accurately predict behavior (Ajzen, 2005). If the behavior is fully under a person's control, they are expected to act in the manner they intend to (Ajzen, 2005). Strong behavioral

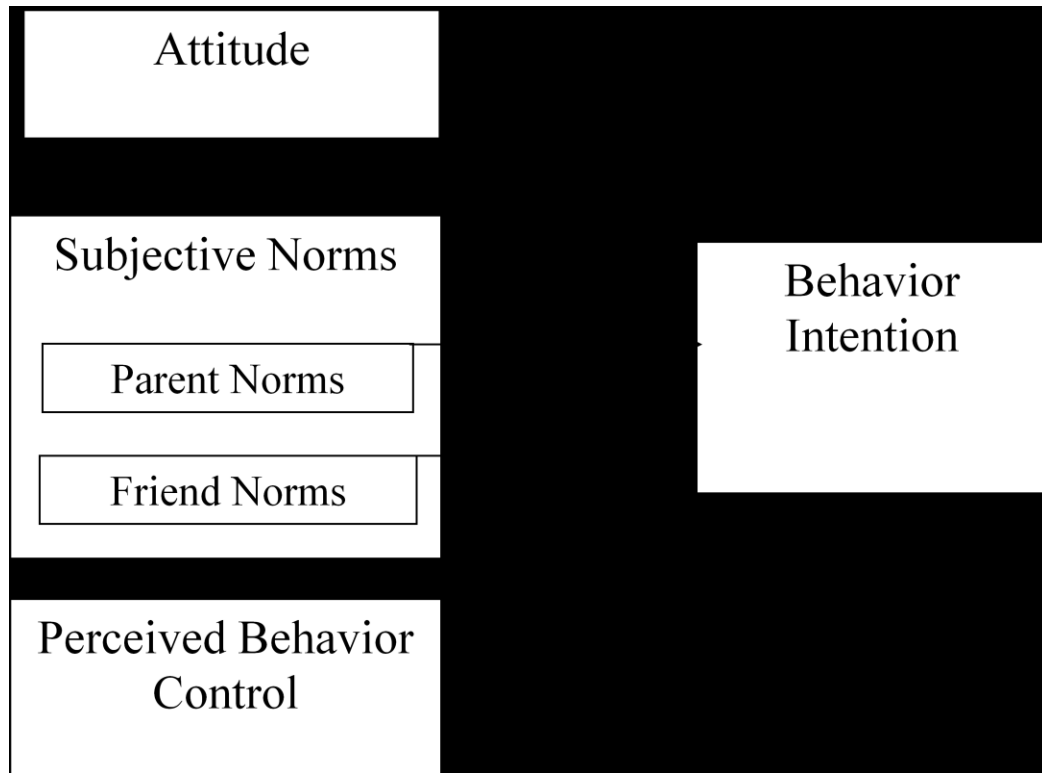
intention is associated with behaviors that a person is in complete control of (Ajzen & Fishbein, 2005). Alternatively, when behavior is not perceived to be in one's complete control, their behavioral intention to act in a specific way will be low (Ajzen & Fishbein, 2005). It is assumed that people's behavior follows a logical thought process beginning with their attitude toward a specific behavior (Ajzen & Fishbein, 2005). Behavioral intention is also influenced by subjective norms and the level of perceived behavioral control (Ajzen & Fishbein, 2005). Therefore, attitude, subjective norms, and perceived behavioral control about the performance of a specific behavior predicts behavioral intention, and ultimately, actual behavior.

Peng (2009) used TPB to investigate how computer simulation activities influenced college student behavioral intention to eat more fruits and vegetables. Rightway Café, a computer game, was created to test if gaming could help increase healthy eating behaviors. Players of Rightway Café created avatars using their age, gender, weight, frame size, and height (Peng, 2009). Based on the player's personal information, Rightway Café generated avatar weight recommendations and players made daily food choices to reach the avatar's recommended weight. Players lost points for gaining weight and received healthy eating counseling to reduce their avatar's weight. Food pyramid recommendations were designed to increase nutrition knowledge and help improve players' food choices. Peng (2009) found at the end of the experiment that participants reported a positive change in attitude, self-efficacy, and behavioral intentions toward healthy eating. One month after playing Rightway Café, players still demonstrated increased self-efficacy in making healthier food choices (Peng, 2009). The findings demonstrated that players had strong behavioral intention to modify their eating habits and was predicted from attitude, subjective norms, and perceived behavioral control. However, for some populations one independent construct may be more salient.

Wang (2009) identified undergraduate behavioral intention to exercise was strongly associated with attitude. The author defined attitude as a multi-dimensional construct in an attempt to better predict exercise behavior. Wang (2009) found utilitarian and self-esteem attitudes predicted behavioral intention to exercise. Findings indicate that people with a utilitarian attitude were motivated to exercise by health benefits whereas people holding self-esteem maintenance attitudes were influenced more by their individual level of self-esteem. Behavioral intention to exercise was higher when people with self-esteem attitudes had low self-esteem (Wang, 2009). Specifically, when people had low self-esteem they were more likely to engage in exercise than when they had high levels of self-esteem. The author argued that people with different attitudes are motivated for different reasons to engage in exercise (Wang, 2009). None the less, the TPB independent constructs accounted for a significant portion of variance in behavioral intention to exercise.

A large body of research exists demonstrating the ability of TPB to explain and predict behavioral intention and behavior. This study contributes to additional understanding of the TPB and normative behavior surrounding fast-food consumption. Adolescent attitude, subjective norms in the contexts of parents and friends, and perceived behavioral control were explored to help explain adolescent behavioral intention to make unhealthy food choices. Figure 1 represents the design of this study. The positive or negative attitudes held about a behavior have a direct relationship with behavioral intention. Subjective norms are the perceived approval or disapproval and the frequency of a behavior, which have a direct path to behavioral intention as well. Unique to this study, subjective norms were investigated for parents and for friends. Perceived behavioral control is the general feeling of control. When control over the performance of a behavior is strong, behavioral intention is a strong predictor of behavior (Ajzen,

1991). People who perceive they have a high level of control over the behavior are more likely to perform the given behavior when intention is high. The amount of motivation a person has to engage in a behavior is identified as their behavioral intention. Previous research has identified a strong correlation between behavior and behavioral intention (Armitage & Conner, 2001).



*Figure 1.* Study Design Following Ajzen's (1991) Theory of Planned Behavior.  
Note. Parents and friends both represent the construct of subjective norms within their own context.

This chapter reviewed literature using the TPB to explain healthy eating and exercise habits. Collectively, the results from previous research demonstrate how behaviors among different populations can be explained by the TPB. The vast majority of research has examined fruit and vegetable intake and exercise related behavior to identify problematic areas intervention programs should address. This study uses TPB to explain adolescent behavioral intention to consume fast food and contribute to a growing body of research related to obesity prevention and

is addressed by Hypothesis 1. Hypotheses H1a, H1b, and H1c investigate the individual relationships between the independent and dependent variables within the model. The Research Question builds on previous studies that have identified key referent groups, such as family and friends, which influence adolescents. However, previous research has not tested specific models examining the subjective norms surrounding each group. This study contributes to the theoretical understanding of TPB's application to an adolescent population and also to understanding subjective norms. Therefore the following hypotheses and research question are proposed:

H1: Adolescent behavioral intention to consume fast food will be influenced by a) attitude, b) parent subjective norms, c) friend subjective norms, and d) perceived behavioral control.

RQ1: What influence does parent descriptive norms, friend descriptive norms, parent injunctive norms, friend injunctive norms have on adolescent behavioral intention to consume fast food?

## **CHAPTER III: METHODOLOGY**

This chapter addresses the methodology design used to investigate the study's specific hypotheses and research questions. First, data collection and study procedures will be addressed. Second, the proposed sampling strategy and participants will be described. Next, an overview of measurements about adolescent attitudes, descriptive and injunctive proximal subjective norms, and perceived behavioral control are provided.

### **Data Collection and Procedures**

Field research is a type of empirical research that collects data from participants in their natural setting. This field research used a quantitative survey design to collect data in high school classrooms to gain an adolescent opinion about fast food. Unlike many qualitative methodologies, survey methodology focuses the number of response options available in each question to participants so the researcher may identify trends in participant opinions and attitudes about specific topics (Creswell, 2009; Greenstein, 2006). Having a systematic set of response options for each variable available to participants allows the researcher to investigate specific theoretical constructs and variables central to answering the guiding hypotheses and research questions (Creswell, 2009). Therefore, survey methodology is ideal for answering this study's research hypotheses/question that aim to test TPB constructs for predicting and explaining adolescent motivations to consume fast food.

Seven high schools located within the geographic region were contacted during the recruitment phase and invited to participate in this study. Initial contact was made with the district superintendent and high school principal to discuss the purpose of the study and the feasibility of using classroom time for non-academic purposes. After the initial information session with school officials, two high schools agreed to allow data to be collected from



adolescents during school hours in hopes the information would also be informative for the school district. It was necessary to secure high schools as participants prior to requesting Institutional Review Board (IRB) approval.

The university IRB requires researchers to specifically state where research involving minor children will be conducted and to obtain written parental consent for research participants who are younger than 18 years of age prior to any research being conducted. Minor children are considered a protected population because they are unable to provide legal consent to participate in research and also because of the intellectual advancement adults typically have over children.

Federal law mandates university IRBs use additional regulations to safeguard children. These regulations include assessing the amount of risk the child will face as a research participant, the potential discomfort the child may experience, and the potential benefits from the research, all of which must be communicated to the parent and the child. Once potential risk, discomfort, and benefits are communicated to the parent through an informed consent, parent written consent should be obtained. Regulations require that in addition to parents' consent for their minor child to participate in research, the child should also provide assent to participate. Child assent should be attained in writing to ensure that failure to verbally object by the child is not miss-interpreted as assent.

For this study, a request was made to the university's IRB for an informed parent notification instead of obtaining written parent consent for adolescents to participate. Informed parent notification means that parents are informed of the research, the purpose, the topic of the questions, and their children's rights as research participants via an informed consent. However, the parent must actively remove their child as a participant if they do not want them to participate. If the parent does not remove their child as a potential participant, the child then has

a right to choose if they will participate or not. An informed parent notification letter was sent to all homes in the school districts of the participating high schools explaining the study and providing contact information for parents to opt their child out of the study. The request to waive written parent consent was made in hopes that adolescents who currently consume a high amount of fast food or who are at risk for developing obesity had every chance to provide their opinion. Requiring written parental permission may have reduced the chance of collecting adolescent opinions from segments of adolescents who are at risk for developing obesity if their parents do not value research investigating childhood obesity. The nature of the questions in this study posed no greater risk than what an adolescent would encounter on a daily basis and no greater risks than what an adolescent would face when taking a standard exam. The potential for the adolescent to experience discomfort or undue risk associated with this study was minimal. Consequently, the university's IRB granted a waiver for written parent consent and approved the informed parent notification. Several parents did respond to ask questions, but no parent removed their child as a participant.

This study used written adolescent assent because the children would be of an age and maturity that would allow them to make an informed decision. Written adolescent assent requires adolescents to receive an informed consent containing the same information provided to the adolescent's parents detailing the purpose of the research, the topic of the questions, their rights as research participants, and the voluntary nature of the research. The adolescent assent form must be in a language that is developmentally appropriate for the child's cognitive ability to help the child make an informed decision about participating. This study excluded cognitively impaired children who received special education services and adolescents whose native language was not English. Adolescents were asked to sign the informed consent if they chose to

voluntarily participate in the research study prior to completing the survey. Students were ensured confidentiality of their responses.

After IRB approval was received granting approval for an informed parent consent and written adolescent assent, the researcher worked with the school to establish a day to come to each high school and collect data. On the day of the data collection, the researcher entered each classroom and explained the study by using the informed assent provided to each adolescent. Adolescents were also provided with examples of fast-food restaurants, such as Burger King, McDonald's, and Wendy's, and then were allowed time to ask questions about the study. Adolescents who wanted to voluntarily participate signed the informed assent and completed the survey. Adolescents who did not want to participate were asked to study quietly during the time other students were completing the survey. When all adolescents were finished, all informed assents and surveys were collected at one time. The survey was distributed in regularly scheduled classes in each high school and took approximately 20 minutes to complete. Each student received a small, healthy snack to compensate them for their time participating in this study. In total, approximately 85% of adolescents who were recruited in the high schools completed the paper-based survey.

A paper-pencil data collection process was selected to reduce the potential for response biases and to control survey access. First, to minimize response biases, school districts were recruited and asked permission to collect data in the classroom during school hours. Because some groups are less likely to respond to surveys (Greenstein, 2006) and the unique life-stage of the population being investigated, the best approach to collect meaningful data was to allow adolescent participants to have every opportunity to provide their individual opinions. Second, a paper-pencil survey ensured that if parents removed their adolescent from participating did not

receive the survey. One potential IRB issue with emailing the survey to adolescents is that students who were allowed to participate may forward the survey link to adolescents whose parents did not grant permission to participate. Overall, paper-pencil survey was the ideal method to collect data during public school hours.

Both rural public high schools were located in the upper Midwest. Both communities experience four distinct seasons with hot summers and freezing temperatures during winter months. Both communities were similar in size with the population ranging from 2,500 to 3,500 residents. Additionally, the two high schools were comparable in size, with approximately 200 students enrolled in grades 9-12. The high schools have open lunch for 12<sup>th</sup> grade students and closed-lunch periods for students in grades 9-11. The school policy requires students in grades 9-11 to remain in the school building during their scheduled lunch period and 12<sup>th</sup> grade students are allowed to leave during their scheduled lunch period with a note from the parents. Socio-economic status is described through the percent of students who are eligible for free or reduced school lunch. In school A, 21% were eligible and for school B, 33% were eligible.

### **Sample**

A purposive sampling strategy was used to collect adolescents' ( $n = 349$ ) responses. Purposive sampling frames are used when the researcher selects cases based on similarity between participants and the population being studied (Greenstein, 2006). Participants in this study were adolescent high school students in grades 9 – 12 between the ages of 13-19. Of the participants, 185 (53.2%) were female, 163 (46.8%) were male, and one person did not report their gender. Participants were ages 14 ( $n = 49$ ; 14.2%), 15 ( $n = 95$ ; 27.5%), 16 ( $n = 95$ ; 27.2%), 17 ( $n = 79$ ; 22.8%), 18 ( $n = 28$ ; 8.1%), and 19 ( $n = 1$ ; 0.3%). Three participants chose not to report their age and no participants were 13 years of age. Four participants (1.2%) identified

their race as African American, two participants (0.6%) identified as Asian, 262 participants (75.5%) identified as Caucasian, three participants (0.9%) identified as Hispanic, 33 participants (9.6%) identified as Native American, and 43 participants (12.4%) identified as other. Two participants chose not to report their race. Of the participants, 89 (25.72%) were in the 9<sup>th</sup> grade, 96 (27.75%) were in the 10<sup>th</sup> grade, 87 (25.14%) were in the 11<sup>th</sup> grade, and 74 (21.39%) were in the 12<sup>th</sup> grade. See Table 1 for demographic statistics.

Table 1

*Participant Demographic Information*

<i>Variable</i>	<i>n</i>	<i>%</i>
<i>Gender</i>		
Male	163	46.84
Female	185	53.16
<i>Age</i>		
14	49	14.16
15	95	27.46
17	79	22.83
18	28	8.09
19	1	0.29
<i>Race</i>		
African American	4	1.15
Asian	2	0.58
Caucasian	262	75.5
Hispanic	3	0.86
Native American	33	9.51
Other	43	12.39
<i>Grade</i>		
9	89	25.72
10	96	27.75
11	87	25.14
12	74	21.39
<i>Transportation</i>		
Drivers license or permit	284	81.4
Access to a car	303	86.8

*Note.* Overall participants  $n = 349$

Adolescents are often involved in sports and extra-curricular activities. From the sample, 61 participants ( $n = 17.48\%$ ) reported not being involved in with any school or community sponsored sports teams. The majority of adolescents ( $n = 255$ ;  $73.06\%$ ) were involved in up to four sports. Twenty-five participants ( $7.16\%$ ) indicated they were involved in five sports. See Table 2 for detailed sport participation frequencies.

In addition to adolescents spending time in sporting activities, other information was collected to describe how participants spent their time in a typical day. Adolescents were asked how many days a week they exercised for 20 minutes or more and  $87.64\%$  ( $n = 305$ ) indicated they exercise at least one day or more in a typical week. The majority of participants ( $n = 294$ ;  $84.48\%$ ) reported that they do not track their daily caloric intake. Adolescents reported that in a typical day  $72.46\%$  ( $n = 250$ ) they spend an hour or less on homework. However,  $69.10\%$  of participants ( $n = 237$ ) indicated that in a typical day, they spend one hour or more with friends.

Adolescents were asked to report the amount of time they spent in a typical day using media. Thirty-three and half percent ( $n = 190$ ) of adolescents reported that in a typical day, they use social media for 30 minutes or less, one hour ( $n = 98$ ;  $28.1\%$ ), 2-3 hours ( $n = 56$ ;  $16.0\%$ ), and 39 ( $11.2\%$ ) reported spending four or more hours using social media. Other screen time adolescents reported using included television and playing video games. Of the participants, only  $12.6\%$  ( $n = 44$ ) participants reported not watching any television. However, adolescents that participated did not spend a significant amount of time playing video games. Over half ( $n = 190$ ;  $54.4\%$ ) reported that they did not typically play video games. See table 2 for leisure time activity frequencies.

Another characteristic of the sample was whether or not adolescents were able to provide their own transportation. This information was collected to investigate if differences existed

among adolescents who had a driver's permit or license and adolescents who did not. A total of 81.4% ( $n = 284$ ) reported having a driver's license and 86.4% ( $n = 303$ ) reported having access to a car.

Table 2

*Adolescent Sporting & Leisure Time Descriptive Frequencies*

<i>Variable</i>	<i>n</i>	<i>%</i>
<i>Number of sports</i>		
0	61	17.48
1	61	17.48
2	72	20.63
3	69	19.77
4	53	15.19
5	25	7.16
6	4	1.15
7	2	0.57
<i>Using social media</i>		
none	35	10
30 minutes or less	117	33.5
1 hour	98	28.1
2-3 hours	56	16
4 or more hours	39	11.2
<i>Watching TV</i>		
none	44	12.6
30 minutes or less	76	21.8
1 hour	107	30.7
2-3 hours	86	24.6
4 or more hours	30	8.6
<i>Playing video games</i>		
none	190	54.4
30 minutes or less	47	13.5
1 hour	46	13.2
2-3 hours	31	8.9
4 or more hours	28	8

*Note.* Overall participants  $n = 349$

Finally, participants were asked about their eating behaviors. Adolescents were asked a series of questions to assess the frequency in a typical week they eat fast food. The list of fast food was developed from previous research and included items such as pizza, chicken nuggets, hamburgers, cheeseburgers, tacos, French fries, fried chicken or fish, milk shakes, non-diet soda, chips, or donuts, to name a few (Bowman et al., 2004; Elbel et al., 2011; French et al., 2001; Jeffery et al., 2006). The list of fast-food restaurants was developed from previous research investigating behavioral trends about fast food (Elbel et al., 2011; French et al., 2001; Jeffery et al., 2006; Harris, Schwartz, & Brownell, 2010). Examples of fast-food restaurants, such as McDonald's, Hardee's, Domino's Pizza, Taco John's, and Kentucky Fried Chicken (KFC), were provided in the survey instructions to serve as examples of fast-food restaurants. Non-diet soda was consumed an average of two days per week ( $M = 2.29$ ;  $SD = 2.51$ ). Pizza, lunchmeat sandwiches, French fries, and cookies were also consumed frequently by the adolescent sample. See Table 3 for eating behavior descriptive frequencies.

Table 3

*Top Five Foods Consumed by Adolescents*

	<i>n</i>	<i>M</i>	<i>SD</i>
1. Soda	346	2.29	2.51
2. Pizza	348	2.15	1.53
3. Lunchmeat sandwich	346	1.93	1.82
4. French fries	347	1.69	1.68
5. Cookie	348	1.67	1.61

**Measures**

A 31-item survey was created to investigate the guiding hypotheses and research question. Participants were asked about exercise habits and demographic information (see Appendix A for survey questionnaire). Steps provided by Ajzen (2005) were followed to operationalize the TPB



independent and dependent variables into survey questions measuring each theoretical construct. The independent variables (e.g. attitude, subjective norms, and perceived behavioral control) were used to predict the dependent variable, adolescent's behavioral intention to reduce the amount of unhealthy food they consumed.

### *Attitude*

Attitude is defined as the person's positive or negative feelings regarding a specific behavior (Ajzen, 2005). This study specifically examined adolescents' attitude toward fast food using 7-point scale. Attitude was assessed using five semantic differential items: *beneficial-harmful*, *pleasant-unpleasant*, *good-bad*, *worthless-valuable* and *enjoyable-unenjoyable*. Cronbach's alpha for the attitude scale was .78 ( $M = 4.32$ ;  $SD = 1.40$ ).

### *Subjective Norms*

Subjective norms are defined as the perceived social pressure to engage or not engage in a specific behavior (Ajzen, 2005). Perceived social pressures may stem from perceived frequency (descriptive norms) or perceived approval or disapproval of a specific behavior (injunctive norms). Subjective norms were measured with specific questions assessing descriptive and injunctive norms for both parents and friends through 10 items using a 7-point Likert-type scale.

Ajzen (2002) recommends inclusion of both injunctive and descriptive norms scale items to gather a holistic understanding of subjective norms because it is possible that the approval (or disapproval) and the performance (or lack of performance) may exert different normative influences on behavior. Therefore, each type of norm exerts an individual type of influence on behavior. Ajzen (2002) suggests combining injunctive and descriptive norm scales to form a holistic picture of norms associated with the behavior being investigated.

Six items assessed adolescents' perceptions of descriptive norms. Three scale items asked about parent behavior and three scale items were related to friend behavior for eating fast food. Values for the descriptive scale items ranged from 1 (*completely false*) to 7 (*completely true*). Descriptive norms were assessed for parents and friends and include items such as, "Most of my friends eat fast food two times or less per week" or "My parent(s)/guardian(s) whose opinions I value eat fast food two times or less per week." Cronbach's alpha for the parent descriptive norms scale was .87 ( $M = 3.56$ ;  $SD = 1.98$ ). Cronbach's alpha for the friend descriptive norms scale was .89 ( $M = 3.82$ ;  $SD = 1.76$ ).

Injunctive norms were assessed for parents and friends and include items such as, "My parent(s)/guardian(s) whose opinions I value eat fast food two times or less per week" or "My friends whose opinions I value approve of me eating fast food two times or less per week." Values for the four injunctive scale items ranged from 1 (*extremely unlikely*) to 7 (*extremely likely*). Cronbach's alpha for the parent injunctive norms scale was .78 ( $M = 3.50$ ,  $SD = 1.58$ ). Cronbach's alpha for the friend injunctive norms scale was .83 ( $M = 3.97$ ;  $SD = 1.56$ ). The parent descriptive and parent injunctive scales were combine to create one measure of parent subjective norms ( $\alpha = .86$ ;  $M = 3.53$ ;  $SD = 1.46$ ). The friend descriptive and friend injunctive scales were combined to create one measure of friend subjective norms ( $\alpha = .80$ ;  $M = 3.91$ ;  $SD = 1.36$ ).

### *Perceived Behavioral Control*

Perceived behavioral control is defined as the perceived ability to perform a specific behavior in relation to control and self-efficacy (Ajzen, 2005). Controllability is the degree of perceived control the adolescent believes they have over their eating decisions. Two items assessed the adolescents perception of the amount of control the adolescent feels they have (e.g.

“It is mostly up to me whether or not I eat fast food two times or less per week”). Values for controllability scale items ranged from 1 (*no control*) to 7 (*complete control*). Cronbach’s alpha for the adolescent perceived controllability scale was .76 ( $M = 5.15, SD = 1.67$ ).

Self-efficacy is the level of confidence an adolescent has in their ability to reduce their fast-food consumption. Self-efficacy was measured to identify the level of confidence adolescents have to reduce fast food they consume. Self efficacy was measured with two items: “If I wanted to I could eat fast food two times or less per week,” and “If I wanted to I could eat fast food two times or less in the next.” Values for the two self-efficacy scale items were, respectively: 1 (*impossible*) to 7 (*possible*) and 1 (*definitely false*) to 7 (*definitely true*). Cronbach’s alpha for the adolescent self-efficacy scale was .72 ( $M = 5.11, SD = 1.78$ ). The perceived behavioral control scale was created by combining self-efficacy and controllability and achieved an alpha of .68 ( $M = 3.82; SD = 2.12$ ).

### *Behavioral Intention*

Behavioral intention is defined as the level of motivation an adolescent has to reduce fast food consumption to two times or less per week and is a function of attitude, subjective norms, and perceived behavioral control (Ajzen, 1991; 2005). Behavioral intention, the study’s dependent variable, was assessed using a 7-point Likert-type scale. Behavioral intentions were assessed with three items: “I intend to eat fast food two times or less per week,” “I will try to eat fast food two times or less per week,” and “I plan to eat fast food.” Values for the each scale item were, respectively: 1 (*extremely unlikely*) to 7 (*extremely likely*); 1 (*definitely false*) to 7 (*definitely true*); 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach’s alpha for the behavioral intention scale was .91 ( $M = 3.82, SD = 2.12$ ). See Table 4 for all scale descriptive statistics.

Table 4

*Scale Descriptive Statistics*

Construct	<i>M</i>	<i>SD</i>	Item #	Reliability
Attitude	4.32	1.4	5	0.78
Parent subjective norm	3.53	1.46	5	0.86
Friend subjective norm	3.91	1.36	5	0.80
Perceived behavioral control	5.13	1.39	4	0.68
Behavior intention	3.82	2.12	3	0.91

**Data Analysis Strategy**

The overarching goal of this study is to investigate TPB ability to predict and explain personal and environmental influences on adolescents' behavioral intention to consume fast food. In order to address the study's hypothesis, path analysis was used to identify if a directed causal relationship among the independent and dependent variables are identifiable. Path analysis is an ideal data analysis process because it requires testing a specific model. Testing a specific model requires researchers to specify a priori the relationships that will be investigated (Suhr, 2004). Path analysis is also ideal because it allows the independent variable and to be tested as dependent variables (Suhr, 2004). Finally, path analysis provides a way to graphically represent and investigate complex relationships between multiple variables. Software packages solve model equations simultaneously to test the fit of the data with the proposed model (see Figure 1) (Suhr, 2004).

In conclusion, the adolescent sample ranged in age from 14 to 19 years of age. Adolescents responded to a paper-based survey collecting their responses about their attitude, subjective norms, perceived behavioral control, and behavioral intention to eat fast food. The scales measured the theoretical constructs of TPB and maintained acceptable to excellent reliabilities. Adolescents provided basic demographic and descriptive type of information.

## CHAPTER IV: RESULTS

This chapter describes the analysis and results from this study. The purpose of the study was to investigate how personal and social factors can be used to explain adolescent eating patterns. Specifically, the aim of this study was to explain adolescent behavioral intention related to eating fast food. TPB (Ajzen, 2005) was used as a theoretical lens to investigate attitudes, subjective norms, and perceived behavioral control to identify which factor was more salient in influencing adolescents' behavioral intention to consume unhealthy amounts of fast food.

This chapter discusses how path analysis was used to investigate the relationships between the independent and dependent variables and answer H1, which tested the ability of TPB to explain adolescent behavioral intention to consume fast food. H1a, H1b, H1c, and H1d investigated the individual relationship between the independent and the dependent variable. Next, multiple regression was used to answer RQ1, which asked how parent descriptive, friend descriptive, parent injunctive, and friend injunctive influenced adolescents' behavioral intention to consume fast food. Finally, one-way ANOVAs were used as supplemental analysis to investigate how parent and friend norms differed across demographic characteristics to provide a more detailed picture of norms surrounding behavioral intention. The results are discussed for each of these tests.

### **Construct Validity**

Each construct was measured using multiple scale items. In order to test the validity of the scale items, the steps described by Andrews et al. (2010) were followed by conducting an exploratory factor analysis to inspect factor structure. A varimax rotation was conducted in SPSS 20.0 to determine if the items loaded on more than one factor. Initial analysis

demonstrated that five distinct constructs existed with Eigenvalues greater than one. The scree plot also showed five distinct factors accounting for 66.08% of variance. The rotated solution revealed that the four independent variables and the one dependent variable scale items were greater than .6 with no items cross-loading on to multiple factors.

After the varimax rotation was performed, a correlation matrix was conducted in order to evaluate the amount of multicollinearity between variables. Multicollinearity, which is typically a concern for multiple regression analysis, is the measurement of the amount of overlap between independent variables. Multicollinearity becomes problematic when researchers are trying to determine the amount of variance the independent variables are responsible for (Munro, 2005). However, when multicollinearity exists, researchers are unable to state which variable is responsible for the changes in the dependent variable. For this study, multicollinearity was not a problem as all correlations were below the .70 rule of thumb, allowing parent norm and friend norm scales to be retained. Further, the correlation matrixes were needed to conduct the path analysis. See Table 5 for the correlation matrix of the variables included in the proposed model that was tested using path analysis.

Table 5

*Correlation Matrix for All Variables*

	1	2	3	4	5
1. Attitude	1.00				
2. Parent norms	0.20**	1.00			
3. Friend norms	0.24**	0.63**	1.00		
4. Perceived behavioral Control	0.15**	0.34**	0.34**	1.00	
5. Behavioral intention	0.12*	0.38**	0.25**	0.35**	1.00

\*\* p < .01, \* p < .05

Based on the varimax rotation and the correlation matrix, the next stage of analysis to address the study's guiding hypothesis, H1, was to conduct a path analysis. Path analysis was used to determine how the independent variables (e.g. attitude, subjective norms, and perceived behavioral control) explained adolescent behavioral intention to eat fast food. Path analysis was selected over multiple regression because path analysis extends beyond simply identifying if an independent variable accurately predicts the dependent variable to examining the relationships among all variables within the equation (Munro, 2005; Suhr, 2004). Path analysis allows models to be re-estimated based on modification indices to help improve the model's overall fit by deleting or adding parameters (Munro, 2005).

### **Hypothesis 1**

A path analysis was conducted using AMOS to address the study's guiding hypotheses (H1) which was designed to investigate the utility of TPB in explaining adolescent behavioral intention to consume fast food. In addition, this study also tested the relationships between (H1a) attitude, (H1b) parent subjective norms, (H1c) friend subjective norms, and (H1d) perceived behavioral control, leading to behavioral intention. Hypotheses H1a, H1b, H1c, and H1d tested how each independent variable influenced the dependent variable. The model tested in this study is defined in Figure 2.

Several statistical indices must be compared to assess the goodness of fit of the hypothesized model. First, the Chi-square goodness-of-fit index is used to identify the overall adequacy of the data fitting the model. The Chi-square index must be non-significant (above .05) for the data to be a good fit with the model.

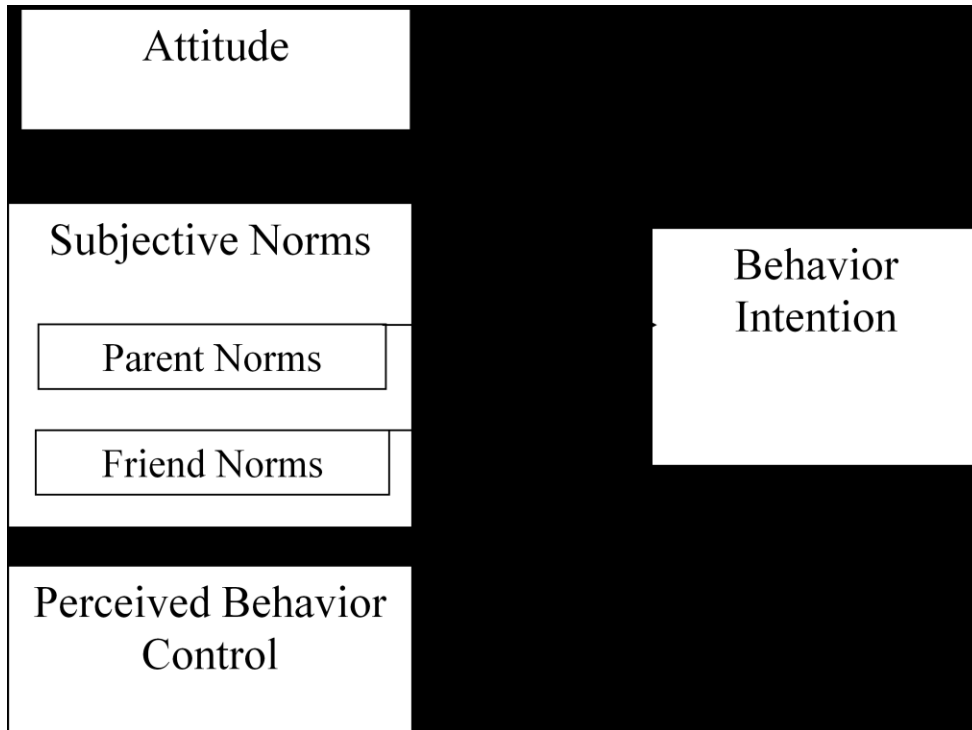


Figure 2. Study Design Following Ajzen's (1991) Theory of Planned Behavior.

Because the Chi-square statistic in path analysis can be influenced by sample size, other statistics are necessary to explain the model's adequacy (Munro, 2005). The following statistics are interpreted based on established guidelines for cut-off points as well as comparing the tested model indices with the independent model, which assumes there is no relationship between the model and the data, and the saturated model, which assumes a perfect relationship. Chi-square should be above .05 and below one for the data to be a good fit. If the Chi-square meets these standards, the comparative fit index (CFI), normed fit index (NFI), root mean square error of approximation (RMSEA), and standardized root mean residual (SRMR) should be analyzed to assess the model's adequacy (Byren, 1998).

The NFI and CFI can range in value from 0 to 1.0 and should be above .90 for a model to be a good fit. The NFI statistic identifies the amount of improvement from the tested model to the independence model. RMSEA evaluates the degree that the model fails to fit the data.



RMSEA and the SRMR must be below .05 for the data to be considered a good fit to the model. However, up to .08 can be considered an acceptable fit. RMSEA model values that are larger than .10 are considered a poor fit for the data (Munro, 2005). After interpreting these statistics, additional analysis such as examining the degrees of freedom and comparing statistics across models will help support conclusions drawn or may be needed if the numbers tell a conflicting story.

In order for the path analysis to produce interpretable results, the model must have a minimum of one degree of freedom. Once meaningful results are identified, the statistics can be compared to the saturated model and the independence model, both of which represent two ends of a spectrum. Lastly, the Akaike's information criterion (AIC) statistic allows for comparison among nested models (models that have been modified with one or more paths removed). AIC is only meaningful when compared to other iterations of a model and helps identify which is a better fit. The model with the lowest AIC is considered to be the best fit for the data. Lastly, the Chi-square difference is a statistic that is used to further support the selection of a model. This statistic compares the difference of the Chi-squares of two models and the degrees of freedom.

The proposed model in H1 tested whether attitude, parent subjective norms, friend subjective norms, and perceived behavioral control would lead to behavioral intention (see Figure 3). Attitude, parent subjective norms, friend subjective norms, and perceived behavioral control acted as the independent variables and behavioral intention was the dependent variable. The analysis showed that the model was a poor fit for the data because the model had zero degrees of freedom, ( $\chi^2 [0, N = 349] = .00, p = .00$ ; (CFI = 1.0; NFI = 1.00; RMSEA = .00; SRMR = .00). Because the model contained zero degrees of freedom, the regression coefficients should

not be interpreted. See Figure 3 for standardized regression coefficients for the model hypothesized in H1.

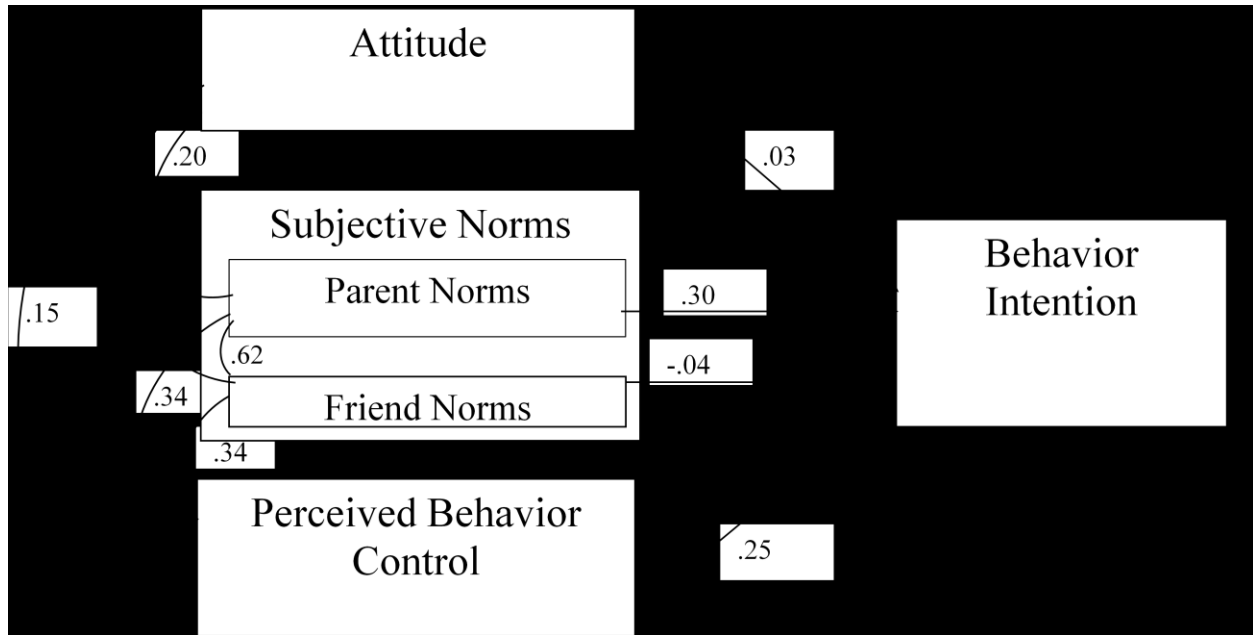


Figure 3. Proposed Model Using the Theory of Planned Behavior (Ajzen, 1991).

Note.  $df = 0$ . The model was a poor fit for the data and regression coefficients should not be interpreted, ( $\chi^2 [0, N = 349] = .00, p = .00$ ; (CFI = 1.0; NFI = 1.00; RMSEA = .00; SRMR = .00).

Previous literature has identified that peer norms may influence adolescents and that adolescents may feel a desire to explore their autonomy. However, parents are often responsible for selecting food that children consume. Based on literature, parent norms may be different than friend norms and would therefore have different effects on adolescent behavioral intention to consume fast food. As a result, the model was adjusted to contain only one set of norms to test if parent norms influenced the model differently than friend norms. A nested model tested each referent group separately in order to compare the impact of parent subjective norms and friend subjective norms on adolescent behavioral intention.

The revised nested model represented in Figure 4 contains the independent variables attitude, parent subjective norms, perceived behavioral control, and the dependent variable,

adolescent behavioral intention. Reducing the number of parameters within the model proved to be a good modification.

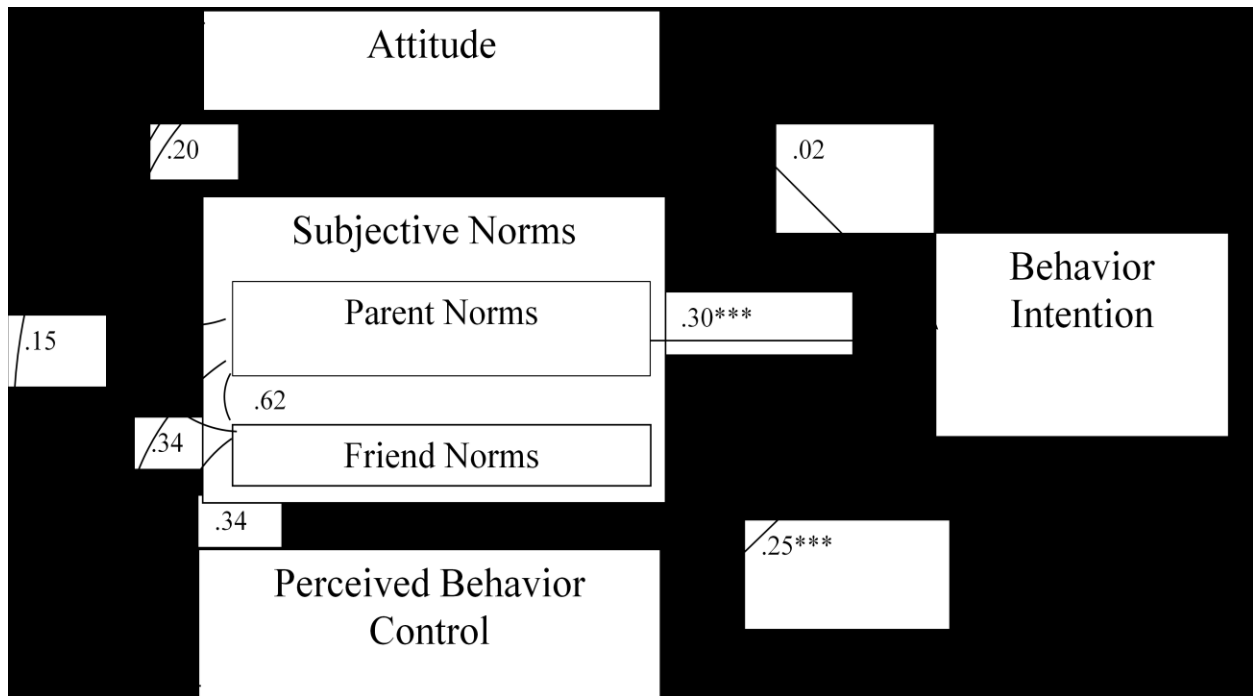


Figure 4. Revised Path Model Testing Parent Norms Using the Theory of Planned Behavior (Ajzen, 1991). Note.  $df = 1$ . The revised model fit the data, ( $\chi^2 [1, N = 349] = .44, p = .51$ ; CFI = 1.0; NFI = .99 RMSEA = .00; SRMR = .01). \*\*\* Regression coefficients were significant at  $p < .001$ .

Path analysis results demonstrated that the data was a good fit for the revised model ( $\chi^2 [1, N = 349] = .44, p = .51$ ; CFI = 1.0; NFI = .99 RMSEA = .00; SRMR = .01). These fit indices demonstrated that the data was almost a perfect fit for the tested model. The standard rule of CFI and NFI to meet or exceed .90 was met by this model (Murno, 2005). In addition, RMSEA and SRMR are both below the .05 maximum standard, with .00 representing a near perfect fit.

The results indicated the model was recursive and all variables were exogenous. Meaning, the causal direction of the path flowed in one direction and no variable in the model had an effect on itself or an indirect effect on another independent variable. Therefore, H1 was partially supported because the original model with both parent and friend norms did not fit the

data but a model containing only parent norms provided a good fit. The standardized path regression coefficients and the co-variances are shown in Figure 3. The path from attitude to behavioral intention ( $\beta = .02, p > .05$ ) was not significant and did not support H1a. However, the paths from parent norms ( $\beta = .30, p < .001$ ) and perceived behavioral control ( $\beta = .25, p < .001$ ) to behavioral intention were significant and supported H1b and H1d, respectively. While parent norms and perceived behavioral control were both significant, further examination of the path beta weights suggests that parent norms had a stronger direct effect on adolescent behavioral intention than perceived behavioral control.

Based on model results, attitude, parental norms, and perceived behavioral control are associated with adolescents' behavioral intention to consume fast food and partially supports H1. The model results imply that parent norms have the strongest direct effect on the dependent variable behavioral intention and supports H1b. Perceived behavioral control also had a significant relationship with behavioral intention and supports H1d. Attitude does not have a significant relationship with adolescent behavioral intention and does not support H1a.

In order to explore the influence of friend norms (H1c), a second revised model was tested and is represented in Figure 5. This model tested the theoretical model containing attitude, friend norms, perceived behavioral control, and the dependent variable, behavioral intention. Overall, the model is a poor fit for the data ( $\chi^2 [1, N = 349] = 25.00, p = .00$ ; CFI = .93; NFI = .93 RMSEA = .26; SRMR = .05) and violates the standard rule of thumb that Chi-square be above .05 and below one. Because the model is a poor fit, standardized effects and path weights are not useful. Therefore, the data demonstrates that friend norms ( $\beta = .14, p > .05$ ) did not have a significant influence on adolescent behavioral intention and does not support H1c.

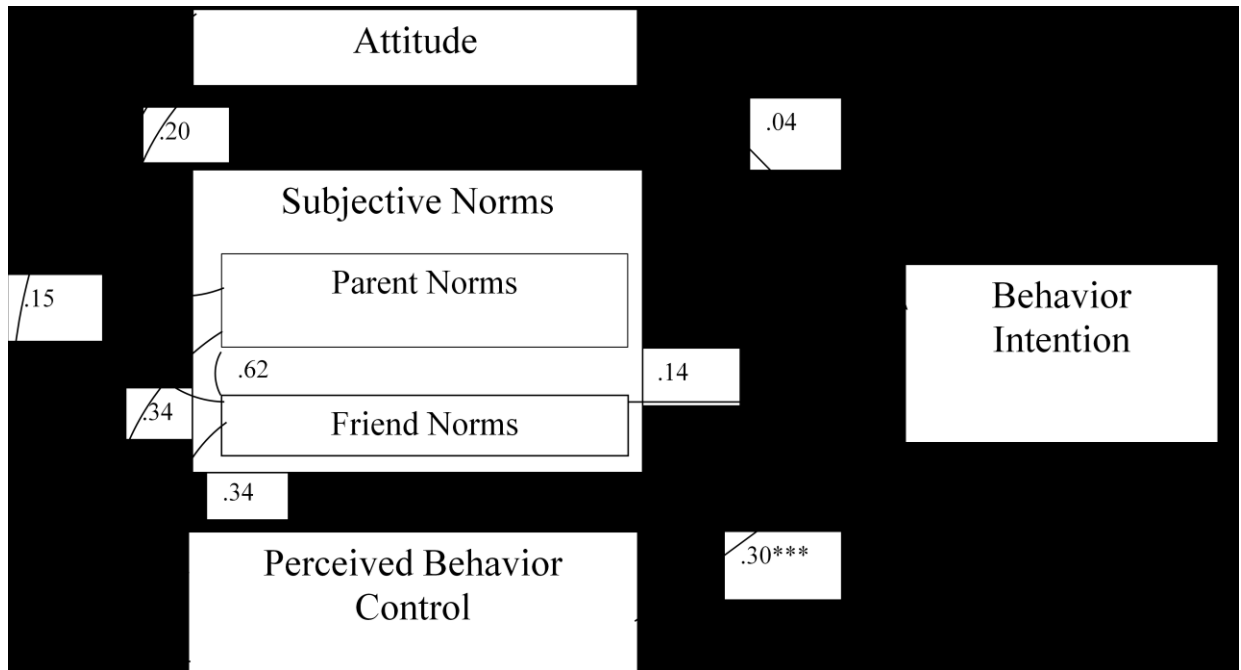


Figure 5. Revised Path Model Testing Friend Norms Using the Theory of Planned Behavior (Ajzen, 1991). Note.  $df=1$ . The model was a poor fit for the data, ( $\chi^2 [1, N = 349] = 25.00, p = .00$ ; CFI = .93; NFI = .93 RMSEA = .26; SRMR = .05). \*\*\*Regression coefficients are significant at  $p < .001$ .

For the friend nested model, attitude ( $\beta = .14, p > .05$ ) did not have a significant influence on adolescent behavioral intention. Perceived behavioral control ( $\beta = .30, p < .05$ ) was identified as having a significant relationship with behavioral intention and mimicked the finding in the parent nested model and again supporting H1d. However, the model containing friend norms does not fit the data.

In addition to the indexes examining overall fit of the model, the AIC statistic demonstrates that the model containing only parent norms is a better fit for the data. The AIC for the model containing parent norms and the model containing friend norms were 28.44 and 53.00, respectively. The rule of thumb for AIC is the model with the lowest AIC is the model that fits the data the best. In addition, the Chi-square difference test supports the parent model being a better fit for the data,  $\chi^2/df = 24.56, p < .05$ . Therefore, when comparing which model is

the best fit to explain adolescent behavioral intention to consume fast food, the nested model containing the independent variables attitude, parent norms, and perceived behavioral control provides a better explanation of the data and explains 20% ( $R^2 = .20$ ;  $r = .45$ ) of the relationship between the independent and dependent variables. Based on Cohen's (1992) effect size index, effects should be evaluated at .1, .3, and .5 for small, medium, and large. Thus, this study's findings have a medium to large effect size.

### RQ1

Multiple regression was used to answer RQ1 and further analyze the effect parent and friend descriptive and injunctive norms has on adolescent behavioral intention to consume fast food. Descriptive norms are the prevalence that a behavioral is performed while injunctive norms are the perceived approval or disapproval of a behavioral. RQ1 sought to identify how descriptive and injunctive norms from parents and friends influenced adolescent behavioral intention and identify which norm had the strongest influence on adolescent behavioral intention.

SPSS 20.0 was used to conduct the multiple regression analysis. Regression plots and residuals were checked to make sure regression assumptions were not violated. Pearson correlations for scales measuring parent and friend descriptive and injunctive norm and the dependent variable, behavioral intention, are provided in Table 6.

Table 6

*Pearson Correlations for Independent and Dependent Variables (N = 345)*

	1	2	3	4	5
1. Parent descriptive norms	1.00				
2. Friend descriptive norms	0.46**	1.00			
3. Parent injunctive norms	0.38**	0.33**	1.00		
4. Friend injunctive norms	0.32**	0.36**	0.59**	1.00	
5. Behavioral intention	0.44**	0.22**	0.21**	0.20**	1.00

*Notes:* The measure for each of the scales range from 1= strongly disagree to 7 = strongly agree. \*\*  $p < .01$

The overall regression model with parent descriptive norms, friend descriptive norms, parent injunctive norms, and friend injunctive was significant  $F(4, 340) = 21.22$ , Adjusted  $R^2 = .19$ ,  $p < .001$ . Standardized beta coefficients for the model are reported in Table 7 and revealed that behavioral intention to eat fast food was most strongly predicted by parent descriptive norms ( $\beta = .41$ ,  $p < .001$ ). However, this was the only significant norm in the model. Friend descriptive norms did not predict adolescent behavioral intention ( $\beta = .01$ ,  $p > .05$ ). Parent injunctive norms and friend injunctive norms were also non-significant, ( $\beta = .03$ ,  $p > .05$ ), and ( $\beta = .05$ ,  $p > .05$ ), respectively. In general,  $R^2$  indicated the overall regression model accounted for 20 percent of the variance in adolescent behavioral intention. Multiple regression results identified a significant overall model. When looking at the four predictors independently, parent descriptive norms had the strongest effect on behavioral intention and was the only statistically significant norm.

Table 7

*Regression on Adolescents' Behavioral Intention to Eat Fast Food (N = 345)*

	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
1. Parent descriptive norms	0.44	0.06	0.41	7.31	< .05
2. Friend descriptive norms	0.01	0.07	0.01	0.07	<i>ns</i>
3. Parent injunctive norms	0.04	0.08	0.03	0.49	<i>ns</i>
4. Friend injunctive norms	0.07	0.04	0.05	0.81	<i>ns</i>

### Supplemental Analysis

Supplemental analysis was conducted after the study's hypotheses and research question were addressed to provide a more detailed understanding of normative behavioral. The supplemental analysis was used to investigate whether or not parent and friend norms varied based on descriptive characteristics and leisure time habits. The goal of this analysis was to identify if any of the norms differed among groups and identify if specific adolescent groups

experienced different parent and friend norms. The supplemental analysis was used as a tool to provide additional information about the study's findings.

A series of one-way analysis of variances (ANOVAs) was conducted to evaluate if any demographic characteristics were associated with parent and friend norms that could help further explain the results identified by the path analysis and multiple regression. One-way ANOVA provides a picture of how means for a dependent variable differ among groups and were used to test if variation existed in parent norms and friend norms for the following independent variables: age, grade, gender, if adolescents had a driver's license or permit, the amount of television time viewed on a daily basis, time spent playing video games, and for the amount of social media time adolescents used. Levene's Test for homogeneity in variance was not significant for any of the one-way ANOVAs. Therefore equal variances in the population were assumed. The first series of one-way ANOVAs was run with parent norms as the dependent variable followed by a second set of one-way ANOVAs with friend norms as the dependent variable.

The one-way ANOVAs testing for additional characteristics identified parent norms varied across age ( $F(4, 340) = 4.00, p < .05, \eta^2 = .05$ ), and grade ( $F(3, 342) = 4.09, p < .05, \eta^2 = .04$ ). Partial eta squared revealed age had a large effect while the relationship between parent norms and grade had a medium effect. Tukey's HSD was used to conduct the post-hoc analysis to control the Type I error for multiple comparisons and identify where specific differences between parent norms among adolescents' age and grade. Tukey's HSD was the appropriate post-hoc analysis because the standard deviations ranged from 1.38 to 1.57 for age and 1.32 to 1.56 for grade, indicating similar variances among the different groups. Levene's Test for equal variances was non-significant for both age,  $p = .61$ , and grade,  $p = .46$ .



The post-hoc test revealed that significant differences in parent norms existed between adolescents 14 years of age ( $M = 3.02$ ;  $SD = 1.38$ ) and 17 years of age and between adolescents who were 15 years of age ( $M = 3.31$ ;  $SD = 1.31$ ) and 17 years of age ( $M = 3.94$ ;  $SD = 1.49$ ). The post-hoc indicated younger adolescents perceived more disapproval for eating unhealthy food than older adolescents. The post-hoc analysis examining the differences in parent norms by grade level identified a difference between adolescents in 9<sup>th</sup> grade ( $M = 3.10$ ;  $SD = 1.32$ ) and adolescents in 11<sup>th</sup> grade ( $M = 3.69$ ;  $SD = 1.46$ ) and an even greater difference between 9<sup>th</sup> grade and 12<sup>th</sup> grade ( $M = 3.82$ ;  $SD = 1.56$ ) adolescents. The post-hoc identified adolescents in earlier grades perceived parents to disapprove of eating fast food more than adolescents in higher grades.

The subsequent one-way ANOVAs investigating parent norms across different groups produced non-significant results. The ANOVA testing for differences in parent norms among male and female adolescents ( $F(1, 346) = 1.52, p > .05$ ) was not significant. The ANOVA testing for variation in parent norms between adolescents who have driver's licenses or permits and adolescents who did not failed to identify significant differences among these two groups ( $F(1, 342) = .48, p > .05$ ). The next ANOVA tested for variation in parent norms based on different categories of watching television. The results for this ANOVA were significant ( $F(4, 38) = 2.7, p > .03, \eta^2 = .03$ ). Tukey's HSD was used and was the appropriate post-hoc analysis because the standard deviations ranged from 1.31 to 1.49 indicating similar variances among the different groups of television watchers. Levene's Test for equal variances was non-significant,  $p = .70$ . However, the ANOVA's significance did not hold up in the post-hoc analysis. Tukey's HSD failed to identify significance when multiple comparisons were tested. One explanation for the post-hoc analysis not identifying significance among the different groups is that Tukey's HSD is very conservative and exerts strict control over the familywise alpha (Howell, 2010). Future

research should further investigate the relationship between the amount of time adolescents watch television and parent norms. The remaining two one-way ANOVAs tested for variation in parent norms across different amounts of time adolescents spent playing video games ( $F(4, 337) = 1.56, p > .05$ ) and the amount of time adolescents reported using social media ( $F(4, 340) = .95, p > .05$ ) and were not significant. As a result, no additional descriptive characteristics were associated with parent norms.

The next series of one-way ANOVAs tested for differences in friend norms across the same categories. The dependent variable in this series of one-way ANOVAs was friend norms. The one-way ANOVA testing for differences in friend norms across age produced significant results with a medium effect ( $F(4, 340) = 3.11, p < .05, \eta^2 = .04$ ). Tukey's HSD was used as the post-hoc test and all assumptions were met. The multiple comparison tests indicated again adolescents 14 years of age ( $M = 3.35; SD = 1.45$ ) reported significantly different friend norms than adolescents 16 years of age ( $M = 4.00; SD = 1.44$ ) and adolescents 17 years of age ( $M = 4.15; SD = 1.37$ ). Younger adolescents perceived norms surrounding their friends as not supportive of eating fast food weekly. However, friend norms effect size was smaller than parent norm effect size reported earlier.

The second one-way ANOVA that was significant for friend norms was grade ( $F(3, 342) = 5.89, p < .05, \eta^2 = .05$ ). The effect size for the relationship between friend norms and grade was a strong relationship. Tukey's HSD discovered significant differences in friend norms between 9<sup>th</sup> grade adolescents ( $M = 3.47; SD = 1.30$ ) and 10<sup>th</sup> grade ( $M = 4.03; SD = 1.24$ ) and 9<sup>th</sup> grade and 12<sup>th</sup> grade adolescents ( $M = 4.32; SD = 1.49$ ). Again, younger adolescents perceived less supportive friends norms for consuming fast food.

The following one-way ANOVAs testing for additional characteristics associated with friend norms did not identify any variation in friend norms using the same group characteristics. The ANOVA testing for variation in friend norms among male and female adolescents was not significant ( $F(1, 346) = .41, p > .05$ ). The next ANOVA tested if differences in friend norms existed among adolescents who reported having a driver's permit or license and adolescents who did not have a permit or license. The results were not significant ( $F(1, 342) = 1.96, p > .05$ ). The ANOVA testing for variation of friend norms among different categories of television watchers found no differences ( $F(4, 338) = 1.18, p > .05$ ). The one-way ANOVAs performed to identify if any variation in friend norms existed across different categories of time adolescents spent using social media ( $F(4, 340) = 1.89, p > .05$ ) or for different categories of time spent playing video games ( $F(4, 337) = .46, p > .05$ ) did not reveal significant results. Overall, the ANOVAs investigating friend norms failed to identify a significant relationship among all categories except age and grade.

The supplemental analysis using one-way ANOVAs suggest that parent norms differ by age and grade of the adolescent. Particularly, adolescents who were 14 years old perceived parent norms differently than adolescents who were 17 years old. Adolescents in 9<sup>th</sup> grade also perceived parent norms differently than adolescents who were in the 12<sup>th</sup> grade. A second set of one-way ANOVAs identified that friend norms differed by age and grade as well. Adolescent who were 14 years old perceived friend norms differently than 15 year old and 17 year old adolescents and 9<sup>th</sup> grade adolescents perceived friend norms differently than 12<sup>th</sup> grade adolescents. Together, the supplemental analysis provides more information suggesting that age and grade are associated with different parent and friend norms related to eating fast food.

In sum, the path analysis identified parent norms and perceived behavioral control have a significant effect on behavioral intention. While many different statistics should be interpreted to determine a model's goodness of fit, it is necessary that the values for the path analysis indices meet established minimum standards. The best fitting model should also be identified through evaluation of degrees of freedom, AIC, and model modification parameters. This study tested the utility of the TPB to explain adolescent fast food eating behavior. The initial model which included both friend and parent norms could not be interpreted. The revised model which contained only one norm found parent norms and perceived behavioral control to be significant influencers of adolescent behavioral intentions. Attitude did not have a significant direct or indirect effect on behavioral intention for the parent model. The path analysis testing friend norms did not fit the data.

Supplemental analysis was conducted using one-way ANOVAs to identify if parent norms and friend norms varied across different groups. Results identified that parent norms and friend norms differ based on age and grade of the adolescent. However, gender, having a driver's license or permit, and the amount of television or social media an adolescent was not associated with variation in the dependent variables. Overall, the results reveal that TPB is useful in helping explain adolescent behavioral intention to consume fast food. For this specific population and phenomenon, norms and perceived behavioral control were the significant influencers of behavioral intention. The one-way ANOVAs helped identify additional characteristics that may be influencing parent and friend norms. The next chapter discusses the results, implications, and areas future research should address.

## CHAPTER V: DISCUSSION

Childhood obesity is a major health issue growing most rapidly among adolescents (Ogden et al., 2012). Because of the rapid increase in obesity rates, it is often argued that the cause of obesity growth is multifaceted (Anzman, Rollins, & Birch, 2010; Yu, 2011). In order to effectively address growing obesity rates, an enhanced understanding of personal and social factors contributing to this health epidemic are needed. The purpose of this study was to test the utility of TPB in helping to explain adolescent behavioral intention to consume fast-food.

Understanding motives to consume fast food is a necessary component of the obesity problem because fast food has been identified as a contributor of childhood obesity (Bowman et al., 2004), and identify theoretically useful information to help drive education campaigns addressing factors contributing to unhealthy adolescent behaviors. TPB provides a fruitful theoretical lens to enhance understanding of this phenomenon. The results from this study contribute to previous literature investigating childhood obesity and literature using TPB to explain health behaviors. In addition, results contribute to literature exploring how proximal, distal, descriptive, and injunctive norms influence behavior.

### **Theory of Planned Behavior Model**

In this study, TPB demonstrated to be a sound conceptual framework for explaining 20% of the variance in adolescent behavioral intention to consume fast-food. Based on Cohen's (1992) effect size index, the findings from this study are medium to large. The variance for the friend model cannot be interpreted because the model was not a good fit for the data. The results from this study identified parents as the primary referent group influencing high school adolescents' behavioral intention to consume fast food. Adolescents' behavioral intention was influenced by parent subjective norms and perceived behavioral control. The salient construct

influencing adolescent behavioral intention was parent subjective norms. Perceived behavioral control was also significant, but had a smaller direct effect on adolescent behavioral intention. Similar findings in other studies demonstrate how TPB constructs are useful to explain a precise behavior among a specific group. For instance, TPB helped explain 66% of variance in behavioral intention and 28% of variance in behavior of adolescent high school females to drink non-diet soda (Kassem, Lee, Modeste, & Johnson, 2003). Kassem and colleagues found that among adolescent high school females, attitude was the strongest predictor, followed by perceived behavioral control. Attitude toward soda held by adolescent high school females revealed that females who regularly consumed non-diet soda reported drinking soda to satisfy thirst, thought drinking soda would make them feel healthy, and that they enjoyed the taste (Kassem et al., 2003). Together, this study's findings are similar to Kassem and colleagues findings by demonstrating that TPB is useful in explaining unhealthy adolescent behaviors.

In the current study, subjective norms and perceived behavioral control were the significant predictors of behavioral intention to consume fast food. The present study helps identify that when it comes to unhealthy eating as opposed to drinking non-diet soda, a product that also has the power to negatively impact health, high school adolescents are influenced more by normative behavior they encounter than their personal attitudes. These findings are consistent with other results that identify that subjective norms have a significant effect on consuming fruits and vegetables and remaining smoke-free (Murnaghan et al., 2010). The findings from this research contributes to literature identifying that subjective norms may be different, and potentially more influential, for adolescent populations than other populations.

A prevailing theory about adolescent development is that youth are influenced and socialized by friends, and parents do not have an impact on adolescents' socialization (Rich

Harris, 2006). Socialization is the process where children learn to act in a manner that is perceived as acceptable and appropriate. Specifically, children learn how to act in a socially acceptable manner through peer interactions and are taught that behaviors that deviate from the group are not accepted (Rich Harris, 2006). For example, youth involved with sports teams, who participate in a specific hobby, or neighborhoods will socialize new members to the group by demonstrating and verbalizing what behaviors are considered acceptable by the group. Rich Harris (2006) explains that children learn from their parents everyday life tasks and skills such as “cooking, weaving, and fishing” and learn how to “behave properly” in social settings through peer interactions (p. 186). Because eating is closely related to cooking and is not typically considered a “social interaction” by high school adolescents, it is feasible that parents have the ability to influence high school adolescents’ fast-food eating habits. Socialization through peer interactions has been identified in drug and alcohol use among high school adolescents (Andrews, Tildesley, Hyman, & Fuzhong, 2002), which are behaviors most children are not socialized to by their parents. However, eating is an everyday activity that parents teach their children about starting as an infant. The findings from this study add to existing research that identifies eating and food patterns are learned early in life (Birch, 1991; Birch et al., 2001) and taught by parents or care givers (Birch, 1991).

Children are socialized beginning at a young age. When children encounter information consistent with the messages received in the home, the beliefs and behaviors the child has learned in the home will be retained (Rich Harris, 2006). Therefore, it is possible that children receive messages about what food to consume, how often to consume, and the amount to consume from their parents. Socialization helps explain that if children hear the same messages and find the same attitude among their peers, the customs learned in the home will be reinforced

(Rich Harris, 2006). Ultimately, high school adolescent fast-food consumption is an area that parents may influence by setting standards about fast food and establishing appropriate fast-food eating behaviors. Children who hear or see the same messages from outside sources, whether it be media messages or through peer interactions, will reinforce how the child thinks about fast food.

Adolescents are continually collecting information about their beliefs and will continue to collect information and modify their behavior into early adulthood (Rich Harris, 2006). The findings from this study identify that high school adolescents may look to their parents for food related information. It is important to note that the referent group for high school adolescents may be different than for adolescent college students. Scholars (Childers et al., 2011; Yun & Silk, 2011) investigating health related behaviors among college students have found close friends to be influential referent groups. The findings from this study suggest that parents play a vital role in establishing healthy eating patterns that limit the amount of fast food.

Another noteworthy theoretical finding is the significance of parent descriptive norms in predicting adolescent behavioral intention. This study identified parent descriptive norms as the strongest influencer of adolescent behavioral intention. Moreover, none of the other types of subjective norms (e.g. parent injunctive, friend descriptive, or friend injunctive) significantly predicted behavioral intention. One possible explanation for parent descriptive norms having the strongest influence is that parents may still provide a large portion of the adolescents' weekly meals. These findings suggest that the type and amount of food consumed at mealtime is still strongly influenced by the parents' actions. Adolescent behavioral intention is strongly influenced by what the parent eats and not the type of food the adolescent perceives the parent to approve.



The findings from this study identifying that parents' actions have a significant influence on adolescent food choices is supported by previous research. Recent research has identified that children do not make healthier choices if their parents talk to them about nutrition or if restrictions are placed on specific unhealthy foods (Stutts, Zank, Smith, & Williams, 2011). For adolescents, it is more important to see how their parents behave and follow by example. This study's results identify descriptive norms as the primary influencer of behavioral intention, which is similar to other findings investigating descriptive and injunctive norms (Cho, 2006; Yun & Silk, 2011).

Proximal descriptive and proximal injunctive norms are related to intent to exercise and intent to maintain a healthy diet (Yun & Silk, 2011). Yun and Silk (2011) argue that four distinct types of norms exist and that norms associated with a specific behavior are distinct. In their study, proximal peer descriptive norms and proximal peer injunctive norms were related to college student intent to exercise and intent to maintain a healthy diet. Only distal peer injunctive norms were related to intention to maintain a healthy diet (Yun & Silk, 2011) demonstrating that specific behaviors will have different types of normative influence. While the present study only focused on investigating proximal norms originating with parents and friends, the findings are consistent with previous norm research in that depending on the behavior, descriptive and injunctive norms operated differently for distinct referent groups. This study advances subjective norm research by adding to literature supporting the distinction between the different types of norms and by helping identify the primary referent group influencing unhealthy eating behaviors among high school adolescents. It is possible that while friends serve as the primary norm referent group for college students, high school adolescents are influenced more by their parents.

Age and grade were associated with variations in parent and friend norms. Younger adolescents who were 14 years old identified more disapproval for eating fast food than adolescents who were 17 years old. Parent norms varied between 9<sup>th</sup> grade and 11<sup>th</sup> and 9<sup>th</sup> grade and 12<sup>th</sup> grade with adolescents in earlier grades indicating less approval of eating fast food than adolescents in higher grades. It is possible that age and grade are both significant because adolescents may be 17 years of age and in either 11<sup>th</sup> or 12<sup>th</sup> grade. Additionally, friend norms varied between 9<sup>th</sup> and 10<sup>th</sup> and 9<sup>th</sup> and 12<sup>th</sup> grade. Together, these findings are telling in that a difference in parent and friend norms occurs between 14 and 17 year old adolescents. Two possible explanations for the variation in norms across age and grade exist. One potential explanation for the variation in norms between younger and older adolescents is that younger adolescents who are 14 years of age may still experience more direct interaction with their parents related to mealtime behavior. Other studies have found that younger adolescents report more mealtime rules and eating together as a family more frequently per week (Fulkerson, Neumark-Szainer, & Story, 2006). For this reason, younger adolescent who participated in this study may experience more home-based meals than fast-food meals with their parents (i.e. descriptive norms) and a lower perception of their parents approval of eating fast food (i.e. injunctive norms).

Another possible explanation for the variation in norms across different age groups is that older adolescents may have busier schedules with extra-curricular activities and have more away-from-home meals (Boutelle, Birnbaum, Lytle, Murray, & Story, 2003). Parents also struggle with work and extra-curricular schedules as barriers to family mealtimes (Boutelle et al., 2003; Fulkerson et al., 2006). As a result, fast-food meals are a quick and often convenient meal

option when adolescents and parents are faced with mealtime barriers, which help explain why older adolescents perceived their parents to eat more weekly fast-food meals.

Aside from schedule barriers parents and adolescents must overcome for family meals, another reason for the variation in parent norms across different age groups may be explained by a change in family dynamics. As children in the home age, the number of family meals ate together declines (Neumark-Sztainer, Story, Ackard, Moe, & Perry, 2000). Junior-high aged adolescents report eating more family meals than high school adolescents (Neumark-Sztainer et al., 2000). These findings help to explain the differences this study identified among parent norms. As adolescents age, the number of meals ate together and at home begins to decline as a result of schedule demands.

An alternative explanation for the variation in parent norms across different age groups, which could also help explicate the relationship between parent norms and television viewing habits, is that watching television and eating fast-food are behaviors that are typically done simultaneously. Boutelle and colleagues (2003) found that as the amount of television watched during family meals increased, so did the amount of fat consumed. Further, an inverse relationship existed between watching television and the amount of fruits and vegetables that were consumed (Boutelle et al., 2003). In this study, findings suggest that parent norms have a direct effect on adolescent behavioral intention to consume fast food. It may be possible that parent and adolescent television viewing habits are similar and that families that watch television while having a family meal may be consuming fast food. This study's findings suggest a relationship exists, but failed to provide a holistic picture of how fast food, parent norms, and obesity are related.

Finally, one last theoretical relationship worth mentioning identified by the present study is the non-significant relationship between attitude and adolescent behavioral intention. The lack of a significant relationship demonstrates that this may be one particular topic where adolescents might not hold solidified attitudes. While this particular finding has many practical implications, other scholars have found that attitude has the power to be a significant predictor of behavior, especially when it is related to improving unhealthy behavior. Previous research has found that attitude was a primary predictor of adults' behavioral intention to reduce their dietary fat intake (Paisley & Sparks, 1998). Specifically, if adults did not see a need or a benefit to their health for making the effort to reduce the amount of fat within their diet, their behavioral intention to improve their health by reducing fat intake was low (Paisley & Sparks, 1998). While the present study failed to identify attitude as a significant predictor of adolescent behavioral intention, it is necessary to note that adults in previous studies had solidified attitudes about the health benefits associated with reducing dietary fat intake. Therefore, an opportunity may exist to positively influence adolescent attitudes about dietary fat intake and the benefits of eating a low-fat diet before an unhealthy attitude is formed.

### **Practical Implications**

It is imperative that parents understand their role and ability to influence adolescents' fast food choices. Some parents may assume that their ability to influence adolescents is limited, but when it comes to food, parents modeling healthy eating influences the choices adolescents make. This study's findings are informative for intervention campaigns designed to reduce adolescent fast-food consumption and educate parents and adolescents about making healthier food choices.

Developing an effective obesity education campaign targeting adolescents requires an understanding of this population's beliefs, opinions, and current behaviors. It is important for

intervention programs to target childhood obesity because it may lead to life-time health consequences such as Type 2 Diabetes, cardio vascular disease, and some types of cancers (Must & Strauss, 1999). In order to help reduce the obesity rate, early preventative measures are needed. Results from this study carry three practical implications that may be helpful in addressing personal and social factors that are related to adolescent obesity.

The first practical implication discussed in this section is that by identifying parents as a the primary influential referent group associated with fast-food norms, education campaigns should work to build awareness among parents regarding how to model healthy eating for their children. This may enhance parents' ability to positively impact their child's current and future health. The second implication discussed in this section is the possibility of being able to influence adolescents' attitudes about fast food and the consequences of eating unhealthy amounts of fast food. Because adolescents' may not have solidified opinions about fast food, it is possible that education programs and health campaigns may be used to help develop adolescent opinions about healthy eating. The third and final practical implication discussed in this section is that schools systems may find the results beneficial when developing health and wellness programs to help address adolescent obesity within their local district.

Based on this study's findings, one could speculate that messages targeting parents who have adolescents between the ages of 14 and 17 should focus on helping parents learn and understand the relationship between controlling food intake and obesity. For instance, placing food restrictions on children who may be prone to developing obesity has been linked to creating self-control problems for the child (Birch, Fisher, Grimm-Thomas, Markey, Sawyer, & Johnson, 2001). When parents create rules about how much or often a child may eat teaches the child to focus on environmental aspects to monitor their food intake. Using external factors for making

food choices (e.g. rules) teaches children to ignore natural, internal cues such as fullness and hunger, which are healthy eating signals (Birch et al., 2001). In addition, parents have reported that they desire more educational information about how to select healthy food (Hesketh, Waters, Green, Salmon, & Williams, 2005) and about different strategies to encourage their children eat healthier (Childers & Hoy, 2012). Therefore, creators of health communication messages targeting parents should consider promoting the primacy of parents' role in fast-food decisions, and also promote information about how parents can teach healthy eating habits to their adolescents.

Second, education and media campaigns should consider how persuasive messages can be used to influence adolescent attitudes about fast food. Health campaigns should be designed to sway adolescent opinions about fast food and the need to monitor consumption of fast food in order to maintain a healthy weight. It is vital that adolescents' opinions about fast food be addressed early in their formative stages because health behaviors are established during childhood years (Banduara, 1998). This study's results demonstrate that attitude at this age is not a significant predictor of adolescent behavioral intention and has the potential to be influenced in a way that will help improve adolescent health and have life-long effects. By addressing and swaying adolescent attitudes about fast food, it is possible that unhealthy behaviors and attitudes will not have to be undone in the adolescents' adult life.

Finally, the third practical implication related to this study is the usefulness of the results for schools systems. School systems support adolescent health by providing physical education, biology and health courses, and meeting the government's nutrition guidelines developed for school lunch and a la' carte programs (O'Toole, Anderson, Miller, & Guthrie, 2007). However, these steps may not be enough to help adolescents learn how to make healthy food choices. The

results of this study could be particularly informative to schools looking to develop a health and wellness program designed to enhance adolescent understanding of the major effects that excessive fast-food consumption can have on their health. School systems also have the capability to augment current curriculum to address findings from this study and focus on helping adolescents adopt life-long healthy attitudes and behaviors. Schools should consider how education programs can be developed that will help influence adolescent attitudes about fast food and unhealthy snacking and help adolescents develop positive attitudes about fruit and vegetable consumption.

### **Limitations**

The current study is not without limitations. This section discusses the limitation's impact in relation to the study's findings. The first limitation of this research study is that only adolescents from rural communities were included. Seven high school districts, some districts containing more than one high school, were contacted and invited to participate in the study. Of those, only two were willing to allow class time for the students to fill out the survey.

Several reasons exist why schools may not have responded to participation requests. First, because adolescents are a protected population, the high school would have to comply with the procedures approved by the university IRB detailing how to obtain parental consent. High school resources are limited and allowing staff time and capital to help collect parental consent may have inhibited their desire to participate. Another reason that could have potentially reduced high schools from participating in the research study is that high schools are often cited as a contributing source to childhood obesity. One reason is that school meals have been associated with higher BMIs (Li & Hooker, 2010) and prior to 2012, calorie-dense food and beverages were readily available in most high schools for students to purchase (O'Toole et. al,

2007), both of which have been linked to childhood obesity. Therefore, high schools may be hesitant to participate in a study investigating childhood obesity out of fear that results could place unwanted attention on the school. A final reason high schools may not have participated was that school decision makers did not see value in participating in the study.

Despite the limited number of schools that participated, an adequate sample size was still attained. Future research should include adolescents from urban communities to provide a more detailed picture of adolescents' opinions about fast food. One way for researchers to address and overcome this limitation is to work to develop relationships with school districts. Another option is to develop relationships with community organizations that are willing to allow research to be conducted. For instance, community sponsored sport teams or events may provide an avenue for research participation to be solicited. However, response bias may result if care is not taken to recruit participants from a variety of community organizations and events. While the results may not be generalized to the entire adolescent population, the results still present meaningful information about the relationships between theoretical variables and how the variables influence behavioral intention.

Another limitation of this study, and one that will provide insightful future research was that only behavioral intention was collected. Collecting adolescent behavior will help provided a clearer picture of how the variables in this study help explain adolescent fast food choices. While behavioral intention is a strong predictor of behavior, it is possible that it may not be an accurate predictor for this specific population. Adding an additional parameter to the model tested would allow the opportunity for another variable to help explain adolescent fast food eating behavior and help scholars and practitioners better understand direct and indirect relationships among the theory's variables. Collecting actual behavior does have limitations and



calls into question the reliability of self-report measures used with adolescent populations. None the less, this study was able to identify a specific referent group adolescents frequently interact with influences their fast food choices.

While no study is without limitations, the current study was limited by the number of participating schools as well as by not collecting adolescent fast food eating behavior. Repeated attempts were made to communicate and recruit schools from a variety of rural and urban communities to participate in the study. Schools may have chosen not to participate because of a lack of resources within the school or failing to see the significance underlying this research study. In order for school based research to be successful, researchers should work to establish relationships with school districts and organizations that allow research recruitment. Therefore, researchers should consider a variety recruitment strategies and how to eliminate potential biases that may result from each strategy.

### **Future Research**

While TPB provides a theoretical lens to understand adolescent behavioral intentions to eat fast food, future research should continue to investigate associations with each of the TPB constructs along with other behavioral type of information to further segment adolescents into homogenous groups. It is not effective to only segment audiences based on age or geographic location (Kazbare, van Trijp, & Eskildsen, 2010). Three areas for research are discussed that have potential to further explain media and family dynamics that are connected to childhood obesity.

The first area for future research to explore relates directly to results uncovered in this study. Specifically, a significant relationship was identified between the amount of time an adolescent watches television and parent norms. However, post-hoc analysis failed to identify

significant differences among the groups. Future research should consider measures that are in-depth and specific for collecting information related not only to the amount of time an adolescent watches TV, but the types of food consumed when watching television with parents compared to when the adolescent is watching television alone. Information collected should also include parent and adolescent attitudes about sedentary activities, physical exercise, and television viewing norms. Results would be informative in providing insightful information about a relationship potentially identified in this study. In addition, it would provide an opportunity to better understand how parent norms related to a sedentary activity are connected to adolescent leisure time behaviors.

A second area future research should continue to investigate are parent subjective norms. This study identified that parent norms, and in particular, parent descriptive norms, have the strongest influence on adolescent behavioral intentions to eat fast food. Additional research investigating if the gender of the parent influences norms as well as socio-economic variables would help provide a more detailed picture of children and families that may benefit education campaigns that address normative influence. In addition, parent normative research should also consider investigating if and how norms related to fast-food consumption and unhealthy eating change based on family size and the number of children or step-children present. Understanding the role multiple children play in norms would help explain if larger families have factors that are going unaddressed in typical healthy eating campaigns.

The third area that future research should investigate and develop health communication messages targeting high school adolescents about the benefits of eating a low-fat diet. Campaigns that are designed to build on target audience attitudinal, normative, and control beliefs identified in theoretical research have a greater potential of relating to the target audience

and strengthening positive beliefs and adjusting problematic ones (Fishbein & Yzer, 2003). Therefore, future research should continue to survey high school adolescents to fully understand and test theoretical constructs and form a foundational understanding of the target audience's beliefs. In order for the communication messages to be effective, the content must match the adolescent perspective. Further, testing the messages among adolescents will be equally important to assess how the message resonates with the target audience and if the suggested voluntary behavioral modification is congruent with the target audiences' values.

### **Conclusion**

In conclusion, this study was designed to investigate and explain adolescent behavioral intention to consume fast food by using the theory of planned behavior (Ajzen, 1991). This study further investigated how two specific proximal referent groups, parents and friends, influenced behavioral intention of adolescents. High school adolescents completed a survey that collected responses for attitude, parent and friend subjective norms, and perceived behavioral control, which served as the study's independent variables. The dependent variable, behavioral intention, was predicted by subjective norms, and more specifically parent descriptive norms, and perceived behavioral control of adolescent behavioral intention. Based on this study's findings, several theoretical and practical implications exist. Theoretical contributions from this study relate to normative, childhood obesity, and TPB research.

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## APPENDIX. SURVEY QUESTIONS

1. How old are you? \_\_\_\_\_
2. What is your gender?
  1. Male
  2. Female
3. What grade are you in?
  1. 9<sup>th</sup>
  2. 10<sup>th</sup>
  3. 11<sup>th</sup>
  4. 12<sup>th</sup>
4. What is your race?
  1. African American
  2. Asian
  3. Caucasian
  4. Hispanic
  5. Native American
  6. Other
5. Circle the number(s) for each school sports team that you have been an active team member of in the past 12 months.

1. Basketball	6. Track	11. Band/Choir
2. Cross Country	7. Volleyball	12. Theater
3. Football	8. Wrestling	13. None
4. Golf	9. Baseball	
5. Swimming	10. Softball	
14. Other: _____		
6. Circle the number(s) for each sports team run by a community organization that you have been an active team member of in the past 12 months.

1. Basketball	6. Track	11. Band/Choir
2. Cross Country	7. Volleyball	12. Theater
3. Football	8. Wrestling	13. None
4. Golf	9. Baseball	
5. Swimming	10. Softball	
14. Other: _____		
7. In a typical week, how many days do you exercise for at least 20 minutes when you are breathing hard and sweating?

1 Day	2	3	4	5	6	7 Days	None
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



8. In a typical day, how much time do you spend in each of the following activities:

	None	30 minutes or less	1 hour	2-3hours	4 hours or more
a. Talking on the phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Watching TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Playing video games	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Using social media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Do you have a driver's license or permit?

1. yes
2. no

10. Do you have access to a car?

1. yes
2. no

11. In a typical week, how many days do you eat each of these foods?

	1 Day	2	3	4	5	6	7 Days	None
1. cheeseburger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. chicken nuggets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. chicken strips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. cookie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. corn dog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. donut	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. French fries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. fried chicken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. fried fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. hamburger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. hot dog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. ice cream	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. lunch meat sandwich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. malt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. milk shake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. non-diet pop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. pizza	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. potato chips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. taco	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Other: please specify _____								

12. For me, eating fast food two times or less per week would be:
- |           |   |   |   |   |   |   |   |             |
|-----------|---|---|---|---|---|---|---|-------------|
| Harmful   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Beneficial  |
| Pleasant  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unpleasant  |
| Good      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Bad         |
| Worthless | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Valuable    |
| Enjoyable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Unenjoyable |
13. My parent(s)/guardian(s) think it is o.k. for me to eat fast food two times or less per week.  
strongly disagree            1    2    3    4    5    6    7    strongly agree
14. My parent(s)/guardian(s) think it is good for me to eat fast food two times or less per week.  
strongly disagree            1    2    3    4    5    6    7    strongly agree
15. My parent(s)/guardian(s) whose opinions I value approve of me eating fast food two times or less per week.  
strongly disagree            1    2    3    4    5    6    7    strongly agree
16. Most of my friends think it is o.k. for me to eat fast food two times or less per week.  
strongly disagree            1    2    3    4    5    6    7    strongly agree
17. Most of my friends think it is good for me to eat fast food two times or less per week.  
strongly disagree            1    2    3    4    5    6    7    strongly agree
18. My friends whose opinions I value approve of me eating fast food two times or less per week.  
strongly disagree            1    2    3    4    5    6    7    strongly agree
19. My parent(s)/guardian(s) eat fast food two times or less per week.  
completely false            1    2    3    4    5    6    7    completely true
20. My parent(s)/guardian(s) whose opinions I value eat fast food two times or less per week.  
completely false            1    2    3    4    5    6    7    completely true
21. Most of my friends who are important to me eat fast food two times or less per week.  
completely false            1    2    3    4    5    6    7    completely true
22. Most of my friends whose opinions I value eat fast food two times or less per week.  
completely false            1    2    3    4    5    6    7    completely true
23. How much control do you believe your parent(s)/guardian(s) have over your decision to eat fast food two times or less per week?  
no control                    1    2    3    4    5    6    7    complete control
24. It is mostly up to my parent(s)/guardian(s) whether or not I eat fast food two times or less per week.  
strongly disagree            1    2    3    4    5    6    7    strongly agree

25. How much control do you believe you have over your decision to eat fast food two times or less per week?  
no control                    1        2        3        4        5        6        7        complete control
26. It is mostly up to me whether or not I eat fast food two times or less per week.  
strongly disagree            1        2        3        4        5        6        7        strongly agree
27. For me to eat fast food two times or less per week would be impossible                    1        2        3        4        5        6        7        possible
28. If I wanted to I could eat fast food two times or less per week.  
definitely false            1        2        3        4        5        6        7        definitely true
29. I intend to eat fast food two times or less per week.  
extremely unlikely        1        2        3        4        5        6        7        extremely likely
30. I will try to eat fast food two times or less per week.  
definitely false            1        2        3        4        5        6        7        definitely true
31. I plan to eat fast food two times or less per week.  
strongly disagree        1        2        3        4        5        6        7        strongly agree