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# The Influence of Time Perspective on Physical Activity Intentions and Behaviors Among Adolescents Residing in Central Appalachia.

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# The Influence of Time Perspective on Physical Activity Intentions and Behaviors Among Adolescents Residing in Central Appalachia

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by

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ABSTRACT

The Influence of Time Perspective on Physical Activity

Intentions and Behaviors

Among Adolescents Residing in Central Appalachia

by

Tauna Gulley

Obesity and inactivity are prevalent among central Appalachian adolescents. Appalachian residents have been labeled "fatalistic," a time perspective unsupportive of health-promoting behaviors such as regular participation in physical activity. The theory of planned behavior has been used extensively to explain the physical activity behaviors of adolescents. Constructs within the theory of planned behavior include attitudes toward the behavior, subjective norms, perceived behavioral control, and intention to perform the behavior. The purpose of this study was to determine the time perspective of central Appalachian adolescents and examine the relationship between time perspective and the constructs within the theory of planned behavior. A descriptive, correlational design was used to examine time perspective and the physical activity behaviors of a convenience sample of 185 central Appalachian adolescents. Data collection occurred in school. Results indicate central Appalachian adolescents are hedonistic with positive attitudes toward the past. Females were more future-oriented than males. Future oriented students were more likely to plan to attend college. Constructs within the theory of planned behavior were moderate predictors of physical activity that lasted long enough or was intense enough to produce sweat.

# DEDICATION

This dissertation is dedicated to my dear sister, Michele Fleming, who lost a courageous battle with cancer while I was completing this work. She was never fatalistic but always optimistic and realistic regarding her diagnosis and treatment. I will never forget you or your courageous spirit. I love you, always.

To my mother, thank you for so many years of love and support. You will be in my heart forever. I love you dearly.

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# CHAPTER 1

# ADOLESCENT HEALTH

## *Introduction*

Obesity is a significant health problem among adolescents worldwide, resulting in serious physical and psychological comorbid conditions (Power, Bindler, Goetz, & Daratha, 2010; Reichert, Menezes, Wells, Dumith, & Hallal, 2009; Tsiros, Sinn, Coates, Howe, & Buckley, 2008). The majority of obesity prevention and treatment interventions for adolescents have focused on nutrition and physical activity. Most interventions have been school-based but have not resulted in cost-effective outcomes or long-term success. More effective intervention strategies are needed to reduce the incidence of obesity among adolescents (Power et al., 2010).

## *Background of the Problem*

Obesity is a major adolescent health issue of concern to families, schools, communities, and the nation. According to the Centers for Disease Control and Prevention (2009), 31.9% of children and adolescents ages 2 years to 19 years are overweight or obese. For adolescents ages 12 years to 19 years the prevalence of overweight and obesity has increased from 5% to 17.4% in the past 30 years. Finkelstein and Trogdon (2008) reported that overweight adolescents are twice as likely to develop diabetes, hypertension, and asthma than normal weight adolescents. Overweight adolescents are also more likely to become obese adults (Freedman et al., 2005). When obesity-related health problems continue into adulthood, the cost of health care increases. As a result, individuals, employers, and state and federal governments suffer the economic burden of increased obesity-related health care costs (Wofford, 2008).

As an individual ages the cost of obesity-related health care increases. Finkelstein and Trogdon (2008) reported the cost of obesity-related illnesses to be nearly $58,000 for each obese individual between the ages of 18 years and 75 years. Finkelstein, Fiebelkorn, and Wang (2003) reported total U.S. health care expenditures for obesity related illnesses were estimated to be $90 billion in 2002; a majority of this financial burden was covered by Medicare and Medicaid. Cost-effective interventions are needed to reduce the economic burden of obesity and improve the quality of life for obese individuals.

Obesity may also diminish adolescents' quality of life by increasing the risk of depression, social withdrawal, and low self-esteem compared to normal weight peers (Hawley, Beckman, & Bishop, 2006). The overweight adolescent is stereotyped as lazy, lonely, and least often chosen as a friend (Hill & Silver, 1995). In a recent study comparing 40-year olds who were overweight since adolescence to 40-year olds who were normal weight at high school graduation evidence suggests the chronically overweight group were less educated and more likely to be unemployed, single, and using government assistance programs (Neighmond, July 28, 2010).

Obesity also places adolescents at increased risk for bullying. In a study of 20 clinically-obese children 8 years to 14 years of age all reported they had experienced bullying and some children suggested bullying had become "normal" behavior (Murtagh, Dixey, & Rudolf, 2006). Believing that cruel behavior is normal diminishes self-worth and negatively affects the development of a positive self-identity. Identifying the factors that contribute to adolescent obesity is necessary to promote positive adolescent development.

Socioeconomic, cultural, genetic, environmental, and behavioral factors contribute to adolescent obesity. Low socioeconomic status is a risk factor for obesity and a sedentary

lifestyle (Pender, Murdaugh, & Parsons, 2010). Individuals with higher incomes can afford to purchase healthier foods and may have opportunities to participate in safe physical activity. Cultural factors such as dietary practices, activity patterns and time perspective have a profound influence on health behaviors. For example, high fat diets and a sedentary lifestyle are characteristic of the Appalachian culture (Purnell, 2009). These characteristics are health risk behaviors that result in obesity and obesity-related illnesses. In addition many rural Appalachian areas have a variety of fast food restaurants; however, they lack fitness centers and public parks (Schoenberg, Hatcher, & Dignan, 2008). Time perspective refers to an individual's orientation – past, present, or future. Individuals who are primarily present-oriented have difficulty connecting their present behaviors with future consequences. For example, present-oriented individuals may be inactive because they cannot conceptualize future consequences of their behavior (Pender et al., 2010; Zimbardo & Boyd, 2008).

Genetics also plays a role in the incidence of obesity; the offspring of obese parents are at increased risk of becoming obese (Kaplan, Liverman, & Kraak, 2005). Environmental factors such as the built environment contribute to adolescent obesity. The built environment includes the areas where adolescents live, work, play, and go to school. For example, schools may provide only soda and high sugar fruit drinks at lunch and in vending machines. Low-income families may not be able to afford fresh fruits and vegetables. Communities may not have safe neighborhoods in which to walk or bicycle (Massey-Stokes & Meaney, 2006). Behavioral risk factors that contribute to adolescent obesity include unhealthy food choices and physical inactivity (Hawley et al., 2006; Massey-Stokes & Meaney, 2006; Power et al., 2010).

### *Physical Activity*

One of the leading causes of obesity in adolescents is a decline in physical activity (Robbins, Gretebeck, Kazanis, & Pender, 2006). Many factors contribute to physical inactivity in adolescents. Exercise patterns are formed in childhood and often continue into adolescence and adulthood. Ponder, Sullivan, and McBath (2000) reported 53% of children in the United States have a television in their bedrooms. Unfortunately, many adolescents prefer to spend time in sedentary activities such as watching television, using the computer, and playing video games rather than participating in physical activity (Jasik & Lustig, 2008). According to the CDC (2003) only 38.5% of children age 9 years to 13 years participate in organized sports. The American Academy of Pediatrics (2001) reported obesity is a negative health result of sedentary activities.

According to the United States Department of Health and Human Services (DHHS) (2008) adolescents should participate in moderate or vigorously intense physical activity for 60 minutes each day. Evidence suggests physical activity decreases anxiety and depression among adolescents (Brown, 2009). However, adolescents are increasingly sedentary and do not regularly participate in any physical activities (Harrell et al., 2003).

Schools are in a unique position to promote physical activity. However, less and less time is devoted to physical education within school systems because of the current emphasis on testing academic accomplishments in math and science to meet annual yearly progress (AYP). In some areas of the country budget reductions have completely eliminated physical education programs (Robert Wood Johnson Foundation (RWJF), 2009). According to the RWJF (2009) only 2.1% of high schools across the nation provided daily physical education during the 2006 school year. Addressing adolescent obesity is imperative and the school is an ideal setting in

which to deliver intervention programs aimed at improving nutrition and increasing physical activity among adolescents.

### *Central Appalachia*

The central Appalachian region consists of counties in eastern Kentucky, eastern Tennessee, southwest Virginia, and West Virginia (Appalachian Regional Commission, 2009). The area has unique socioeconomic and cultural factors that influence the health behaviors of adolescents in the region. Eighty percent of central Appalachian counties are rural and predominantly white with higher unemployment and poverty and lower levels of educational achievement compared to other Appalachian regions and the rest of the United States. In 2000 the mean per capita income in central Appalachia was $13, 282, the lowest in the United States. Twenty-seven percent of central Appalachian residents have not earned a high school diploma or equivalent degree, only 20% of U.S. citizens are without a high school diploma or equivalent (Matthews-Juarez & Weinberg, 2006).

### *Fatalism*

The residents of Appalachia have a rich cultural heritage that is often misunderstood and misrepresented in the literature. Since the early 1900s the coal industry elevated the economy and influenced the cultural beliefs of central Appalachian residents. However, the coal mining industry has diminished over the past 30 years resulting in a decreased number of jobs and poor economic conditions for the region. In addition Appalachian populations have a greater incidence of obesity, cardiovascular disease, and certain cancers that contribute to premature death (Huttlinger, Schaller-Ayers, & Lawson, 2004; Schetzina, et al., 2009).

Because of the socioeconomic conditions of many residents of the Appalachian region, Appalachians are stereotyped as fatalistic, believing they have no control over the future;

however, little empirical evidence exists to support fatalistic beliefs among adolescents residing in this area. One study was found that explored fatalism among Appalachian and non-Appalachian adolescents. Results indicated fatalism was more prevalent among Appalachian adolescents than their non-Appalachian age mates (Phillips, 2007). However, some evidence actually refutes the existence of fatalism among adults in the Appalachian culture. For example, a qualitative study examining social and cultural factors associated with health and illness in 31 women and 30 men residing in the Appalachian regions found that attachment to the community, family cohesion, and strong religious faith were factors influencing health behaviors. Fatalism did not emerge as a factor in focus group discussions (Coyne, Demian-Popescu, & Friend, 2006). With regard to the cancer care of residents in the Appalachian region, Behringer and Friedell (2006) found that both faith in God and recommendations from health care providers were considered when making decisions regarding treatment options.

### *Time Perspective*

Time perspective is a cognitive behavioral concept reflecting an individual's orientation or attitude toward the past, present, or future. Worrell and Mello (2009) posited that time perspective is appropriately measured as either a positive or negative attitude toward the past, present, or future. Zimbardo and Boyd (2008) identified six theoretically unrelated time perspectives including past-negative, past-positive, present-fatalistic, present-hedonistic, future, and transcendental-future.

According to Zimbardo and Boyd (2008) individuals with a present orientation may be *present holistic, present fatalistic,* or *present hedonistic*. Present holistic individuals resign themselves fully to the present without thoughts of future possibilities or past obligations, an uncommon orientation in the Western world. Therefore, this study includes only the

concepts of hedonistic and fatalistic-present and these orientations' influence on physical activity behaviors in adolescents.

Fatalism is a present-oriented time perspective. Fatalistic individuals believe their future is predetermined – their fate uncontrollable. Fatalists may engage in drug use or promiscuous sex. They are resigned to bleak, hopeless futures (Zimbardo & Boyd, 2008). Adolescents with a fatalistic perspective are frequently depressed and have low self-esteem and less energy which may result in physical inactivity (Zimbardo & Boyd) .

Individuals with a present hedonistic orientation enjoy living in the moment. They enjoy the pleasures of the present with little regard for the future. They are novelty seekers and engage in drug use or promiscuous sex for instant pleasure (Zimbardo & Boyd, 2008).

Most of the available research on time perspective has explored the effects of future or present orientation on selected outcome behaviors. However, in a study of 301 adolescents 57% reported thinking about the past on a daily basis (Mello, Worrell, & Andretta, 2009). Evidence suggests that a future time perspective is positively associated with higher socioeconomic status (Diener, 2000), academic achievement (Bowles, 2008), fewer health risk behaviors (Zimbardo & Boyd, 1999), and subjective well-being in adolescents (Zaleski, Cycon, & Kurc, 2001). A dominant present orientation is associated with diminished motivation, mental health problems, juvenile delinquency, crime (Zimbardo & Boyd, 1999), and substance use (Keough, Zimbardo, & Boyd, 1999).

Intervention strategies aimed at increasing physical behaviors among adolescents must be developmentally appropriate to be successful. The development of a future time perspective begins around age 11. As children develop into adolescents, thoughts about the future move from fantasy to reality (Piaget, 1955). Goal setting, a characteristic of a future time perspective,

requires abstract thinking that begins during adolescence (Piaget, 1972). Adolescents are also capable of self-reflection that allows them to think about multiple dimensions of time. Considering the cognitive development of this age group, adolescents are an appropriate group with which to explore the effect of time perspective on physical activity (Worrell & Mello, 2007).

### *Theoretical Frameworks*

Interventions aimed at behavior change should be guided by behavioral theories (Sharma, 2006). Behavioral theories provide a link between the behavior of interest and the desired outcome. Without the appropriate framework researchers do not consistently identify variables of interest, determine relationships among variables, or establish program effectiveness. Failure to connect interventions to a framework diminishes confidence in intervention effectiveness and limits the use of the intervention in practice (Fawcett & Garity, 2009). Some authors report multiple behavioral theories when describing interventions (Wang et al., 2006); others do not specify a theoretical approach. Many of the child and adolescent obesity prevention intervention programs are guided by the health belief model, the health promotion model, the transtheoretical model, social cognitive theory, or the theory of planned behavior.

The Theory of Planned Behavior (TPB) has been used extensively to understand and predict physical activity behaviors (Armitage, 2005) among adolescents. The TPB was developed by Ajzen (1985) as an extension of the Theory of Reasoned Action proposed by Ajzen and Fishbein (1977). According to the TPB willful behavior is determined and can be predicted by the intention to perform the behavior (Ajzen, 1988; Wu et al., 2009). Intention is influenced by behavioral, normative, and control beliefs.

Individuals form beliefs by linking behaviors to attributes or outcomes. For example, adolescents have reported that stress relief and enjoyment are positive outcomes of physical activity (Rees et al., 2006). Therefore, when adolescents attribute physical activity to positive outcomes they may be motivated to participate in physical activity. In contrast the cost associated with participation in some physical activities may preclude participation. Because the attributes and outcomes are valued by the individual as either positive or negative, the individual subsequently acquires a positive or negative attitude toward the behavior (Ajzen, 1991).

Behavioral beliefs refer to individuals' attitudes toward performance of a behavior. The process of developing an attitude toward a behavior begins when individuals link the performance of the behavior with possible outcomes and attributes. After evaluating the possible outcomes the individual places a positive or negative value on performance of the behavior that positively or negatively influences the individual's intention to perform the behavior (Ajzen, 1988). Time perspective influences attitudes toward health risk and health protective behaviors (Henson, Carey, Carey, & Maisto, 2006).

In addition to behavioral belief intention to perform a specific behavior is driven by normative beliefs. Normative beliefs (subjective norms) are the expectations of significant others about performing a specific behavior. Does the individual perceive social support from significant others to participate in a specific behavior? For example, children in families who regularly participate in physical activities will likely be physically active. Or, does the individual perceive social pressure from significant others not to participate? (Ajzen, 1988). Time perspective has been shown to influence perceived levels of social support. When under stress, future-oriented individuals reported higher levels of support

than present hedonists who only reported support from friends (Zimbardo & Boyd, 2008).

Control beliefs refer to an individual's beliefs regarding factors that may prevent or promote the possibility of participating in a given behavior. A control belief, perceived behavioral control (PBC), reflects the individual's perceived ability to perform the behavior, which is similar to Bandura's self-efficacy construct (Bandura, 1997). Beliefs underlying PBC include the individual's perceptions of resources and opportunities (Ajzen, 1988), a consideration when developing physical activity intervention programs for adolescents who may depend on significant others for resources to participate in physical activity. For example, adolescents may depend on parents or family members for costs of uniforms, equipment, registration fees, and transportation.

For adolescents with a future time perspective, barriers to participating in physical activity may not seem so great. A study of 400 elementary school students revealed that children with a future time perspective had greater perceived control and positive well-being. Students with a present orientation reported helplessness and lack of perceived control (Zimbardo & Boyd, 2008). This study explored the relationship between time perspective and physical activity attitudes, intentions and behaviors in a sample of adolescents residing in rural, central Appalachia. A pilot study was completed to determine the appropriate time frame for completion of the questionnaires, to ensure the questionnaires were practical and easy-to-read, and to determine the reliability of two measures of time perspective. The pilot study informed the main study protocol.

This study explored the relationship between time perspective and physical activity among adolescents residing in central Appalachia. This study added to the understanding of physical activity intervention planning for adolescents. Results of this study could inform

health care practitioners providing care to adolescents residing in central Appalachia and aid in the development of intervention programs to promote increased physical activity among rural adolescents.

### *Research Questions*

1. What is the time perspective of adolescents residing in central Appalachia: fatalistic, futuristic, or hedonistic?

2. Is there a relationship between time perspective and physical activity attitudes, intentions, and behaviors of adolescents residing in central Appalachia?

3. To what extent do time perspective, attitudes, subjective norms, perceived behavioral control, and intentions predict physical activity among adolescents residing in central Appalachia?

### *Problem Statement*

The relationship between time perspective and physical activity attitudes, intentions, and behaviors has not been studied in adolescents residing in central Appalachia. The purpose of this study was to determine if a relationship exists between time perspective and physical activity attitudes, intentions, and behaviors among central Appalachian adolescents. Ajzen's (1991) Theory of Planned Behavior (TPB) was used to guide this study. According to the TPB intention to perform specific behaviors drives the actual performance of behaviors; intentions are driven by behavioral, normative, and control beliefs. Behavioral beliefs refer to the attitudes toward the behavior. Normative beliefs refer to subjective norms, individual's perceptions of caring others regarding performance of behaviors. Control beliefs refer to perceived behavioral control or individuals' perceived ability to perform the behavior. It is hypothesized that adolescents with a future time perspective will report positive attitudes toward physical activity and more frequent participation in physical activity.

## *Significance for Nursing*

This research study has implications for nursing practice. The relationship between time perspective and physical activity behaviors has not been studied in central Appalachian adolescents. Developing an understanding of the factors that may enhance participation in physical activity will inform future intervention programs aimed at increasing adolescents' participation in physical activities. The developed intervention programs can be implemented in clinical practice by nurse practitioners or in schools or community settings by school and public health nurses who provide care to adolescents residing in rural areas.

## *Definition of Terms*

### *Adolescence*

Adolescence is "the period between childhood and adulthood" (Merki, Cleary, & Hubbard, 2003, p. 165). Participants for this study were male and female adolescents between the ages of 14 and 18 attending school in rural central Appalachia.

### *Attitude*

Attitude is the degree of favorability an individual develops toward a behavior or psychological entity.

### *Time Attitude*

Time attitude is defined as "positive and negative attitudes toward the past, present and future" (Mello & Worrell, 2010, p.1).

### *Time Perspective*

Time perspective is defined as "the often nonconscious personal attitude that each of us holds toward time and the process whereby the continual flow of existence is bundled

into time categories that help to give order, coherence, and meaning to our lives" (Zimbardo & Boyd, 2008, p. 51)

*Past Negative Time Perspective*

A past negative time perspective is characterized by recalling past events in an unconstructive manner (Zimbardo & Boyd, 2008).

*Present Hedonistic Time Perspective*

A present hedonistic time perspective is characterized by risk taking, impulsive actions, and seeking pleasure in the present without consideration of future consequences. Hedonistic individuals enjoy high-intensity lifestyles and surround themselves with friends and possessions. They enjoy living in the moment and avoid planned activities such as health and dental care. In comparison to future-oriented individuals, present-hedonistic individuals are less likely to participate in cancer screening, floss teeth regularly or eat healthy foods (Zimbardo & Boyd, 2008).

*Future Time Perspective*

Future time perspective is characterized by goal setting, conscientious, consistent actions, and concern for future consequences. A future reward is motivation for today's actions (Drake, Duncan, Sutherland, Abernethy, & Henry, 2008; Zimbardo & Boyd, 2008).

*Past-Positive Time Perspective*

A past-positive time perspective is characterized by reconstructing past events in an optimistic manner (Zimbardo & Boyd, 2008).

*Present Fatalistic Time Perspective*

A present fatalistic time perspective is characterized by a lack of personal efficacy, the

belief that fate is uncontrollable. The present fatalistic individual has a helpless, hopeless attitude toward the future. Compared to future-oriented individuals, fatalistic individuals have less energy and less self-esteem (Drake et al., 2008; Zimbardo & Boyd, 2008).

*Behavioral Beliefs*

Behavioral beliefs refer to attitudes toward a behavior, "the degree to which an individual has a favorable or unfavorable evaluation of the behavior" (Ajzen, 1991, p. 188) and the individuals' "evaluation of the outcomes associated with the behavior and by the strength of these associations" (Ajzen, 1988, p. 6).

*Normative Beliefs*

Normative beliefs (subjective norms) refers to the perceived views or social pressure caring referents exert on the individual to perform or not to perform a given behavior and the individual's motivation to comply with the referent (Ajzen, 1988; Fishbein & Ajzen, 2010). In this study, mother, father, and friends are caring referents.

*Control Beliefs*

Control beliefs refer to perceived behavioral control (PBC), including the individual's perception of control over the behavior, the strength of the control beliefs, and the perceived ease or difficulty of performing the behavior (self-efficacy). PBC is a predictor variable in the TPB. According to the TPB, PBC along with intention can predict the performance of a specific behavior (Ajzen, 1991; Fishbein & Ajzen, 2010), or PBC may directly predict behavior independent of intention (Ajzen, 1988).

*Intention*

Intention is the best predictor of behavior performance, a central predictive factor in the TPB. Intention is readiness to perform a behavior (Ajzen, 1991; Fishbein & Ajzen, 2010).

*Physical Activity-Related Behaviors*

In this study, behavioral beliefs, normative beliefs, control beliefs, and intention are referred to as physical activity-related behaviors.

*Participation in Physical Activity*

Participation in physical activity refers to weekly frequencies of strenuous, moderate, and light activity and any activity that is pursued "long enough to work up a sweat" (Godin & Shephard, 1985, p. 146.).

## *Summary*

Obesity and inactivity are prevalent among adolescents in central Appalachia. Appalachian residents have been stereotyped as "fatalistic", a time perspective that results in negative health behaviors, although current empirical literature does not support the existence of fatalism in the Appalachian culture. The TPB has been used extensively to understand physical activity behaviors among adolescents. The TPB states that performance of a behavior is preceded by the intent to perform the behavior; intentions are influenced by individuals' attitudes, perceived subjective norms, and PBC regarding the behavior. No studies have explored the relationship between time perspective and physical activity-related behaviors or the extent to which attitudes, subjective norms, and PBC adequately predict physical activity among adolescents residing in central Appalachia. The purpose of the study is to determine if a relationship exists between time perspective and the physical activity-related behaviors of these adolescents and the extent to which attitudes, subjective norms, and perceived behavioral control predict physical activity. Figure 1 demonstrates the proposed relationship between time perspective and the constructs of the

Theory of Planned Behavior. Results of this study will guide interventions aimed at increasing physical activity levels among central Appalachian adolescents.

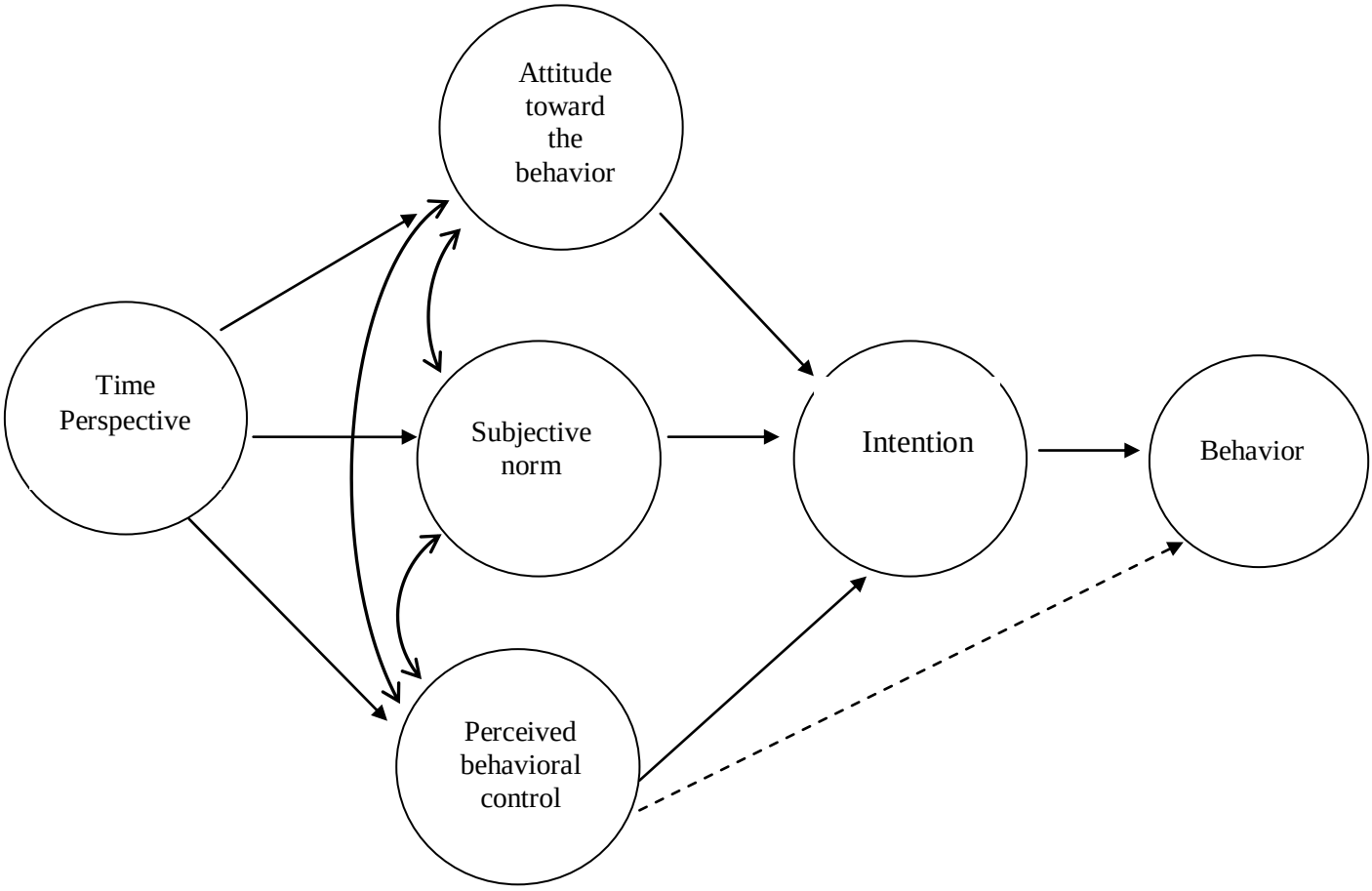


Figure 1. Model Depicting the Components of the Theory of Planned Behavior Related to Time Perspective

# CHAPTER 2

# LITERATURE REVIEW

Adolescent obesity has increased worldwide (Budreau & Godin, 2009; Bustos et al., 2010; Huang, Drewnowski, Kumanyika, & Glass, 2009; Janssen et al., 2005) resulting in an increased incidence of hypertension, type II diabetes (Tsiros et al., 2008), hyperlipidemia, sleep apnea, cholecystitis (Singhal, Schwenk, & Kumar, 2007), stigmatization, bullying from normal weight peers, depression, and anxiety (Sweeting, 2008). Increases in obesity-related illnesses have resulted in increased health care costs to individuals and state and federal governments.

The majority of intervention strategies aimed at reducing obesity have been school-based and have demonstrated limited success in preventing weight gain or maintaining weight loss among adolescents (Huang et al., 2009; Power et al., 2010). Adolescence is a unique developmental period characterized by physical, attitudinal, and hormonal changes that must be considered when developing programs for this population (Jasik & Lustig, 2008; Tsiros et al., 2008).

Time perspective relates to health behaviors. Goal setting is a motivational concept situated within a future time perspective. An individual with a future time perspective sets goals and acts conscientiously to reach those goals; a future reward is sometimes the motivation for today's actions. Goal setting appears to be a successful strategy to increase the frequency of participation in physical activity among adolescents (Faith & Wrotniak, 2009). However, the relationship between time perspective and physical activity has not been established for this population.

The Theory of Planned Behavior has been used extensively to understand and predict physical activity behaviors of adolescents. Understanding the relationship between time

perspective and the determinants of physical activity within the Theory of Planned Behavior could be useful in guiding the development of interventions aimed at increasing physical activity among adolescents.

This literature review examines the current research on adolescent obesity, physical activity, the Theory of Planned Behavior, and the concept of time perspective as factors influencing physical activity intentions and behaviors. This literature review reveals a paucity of research aimed at understanding time perspective and physical activity behaviors among adolescents.

### *Adolescent Obesity*

The literature on adolescent obesity, its causes, its physical and psychological effects on individuals, and proposed intervention strategies is limited. Most authors report adolescent obesity is attributed to multiple factors including limited, if any, physical activity and unhealthy food choices (Boone-Heinonen, Gordon-Larsen, & Adair, 2008; Jimenez-Pavon, Kelly, & Reilly, 2010; Montoya, 2010; Robert Wood Johnson Foundation [RWJF], 2009). Evidence supports targeting physical activity, diet, and television viewing to effectively reduce body mass index in school-age children (Doak, Visscher, Renders, & Seidell, 2006). Recently increased daytime sleep (Landis, Parker & Dunbar, 2009) was investigated as a factor contributing to the increased incidence of obesity.

Many studies have documented the increased health risks associated with adolescent obesity. Obese adolescents are more likely to experience depression (Merten, Wickrama, & Williams, 2008), anxiety (Anderson, Cohen, Naumova, Jacques, & Must, 2007), shame (Sjoberg, Nilsson, & Leppert, 2005), and poor social and emotional functioning (Swallen, Reither, Haas, & Meier, 2005). Physical consequences of adolescent obesity include disorders

of the cardiovascular, endocrine, pulmonary, and gastrointestinal systems (Mustillo et al., 2003). In addition to physical and psychological consequences, adolescent obesity negatively affects on-time graduation rates for Asian, Caucasian, and Hispanic females in the United States, resulting in decreased future wages (Okunade, Hussey, & Karakus, 2009). Interventions are needed to reduce the incidence of adolescent obesity, obesity – related illnesses, and the economic burden associated with these illnesses.

Evidence supports a disparity in the prevalence of obesity among adolescents from lower socioeconomic status (SES) homes. In a sample of 2,516 socioeconomically and ethnically diverse adolescents males and females in the low-SES category were at highest risk for obesity. In addition, over a 5-year study period girls in the low-SES category showed significant increases in the prevalence of obesity. Obese adolescents in rural Appalachian communities are also likely to live in low SES families. Intervention programs aimed at preventing and controlling obesity must be accessible and address the unique characteristics of this population (Sherwood, Wall, Neumark-Sztainer, & Story, 2009).

The least expensive, most effective program for the management of adolescent obesity has yet to be determined. One challenge lies in comparing the effectiveness of school-based interventions across studies because study samples include children and adolescents of various ages in different contexts. Adolescents and children have unique developmental needs that likely require approaches exclusive to a particular age group (Tsiros et al., 2008). In addition researchers use a variety of theoretical (or atheoretical) approaches, intervention methods, and outcome measures (Peterson & Fox, 2007). Tailoring intervention programs to the unique cultural characteristics and needs of the target population is necessary to enhance

the effectiveness of the intervention (Beets, Pitetti, & Forlaw, 2007; Kahn et al., 2002; Wilson, 2009).

### *Central Appalachia*

The Central Appalachian region is an economically and socially depressed area characterized by low educational attainment, low income levels, high unemployment, and health disparities (Behringer et al., 2007). These characteristics result in undesirable outcomes for youth residing in the area. In one report, drug abuse and mental disorders were significantly higher in Central Appalachia compared to the rest of the Appalachian region. In the same study, adolescents residing in the Appalachian region had the highest rate of nontreatment use of psychotherapuetics compared to adults and non-Appalachian adolescents (Zhang et al., 2008). Unfortunately, these circumstances inhibit the adoption of health-promoting behaviors.

Making healthy food choices is a health-promoting behavior, however, the availability of fresh fruits and vegetables may be limited due to available financial resources and reliance on "traditional" Appalachian foods. Traditional Appalachian foods such as cornbread, soup beans with pork, biscuits and gravy, fried potatoes, and fried chicken are affordable, have a high satiety level, but are also high in fat and calories (Sohn, 2001). In addition fast food restaurants are prevalent in Appalachian counties and popular among adolescents due to the affordable dollar menus. High fat diets and sedentary behaviors result in high rates of obesity.

Residents in the Appalachian region are the most sedentary in the United States and have the highest rates of obesity (Hortz, Stevens, Holden, & Petosa, 2009; Schoenberg, Hatcher, & Dignan, 2008). In one study BMI screenings were conducted in an elementary school in a rural Appalachian region of southeastern Ohio. For children ages 6 years to 11 years 17%

were at risk for overweight and 20.9% were overweight. Both measures exceeded the national estimates for overweight (15.6%) and at risk for overweight (15.6%) (Montgomery-Reagan, Bianco, Heh, Rettos, & Huston, 2009). In another study exploring the prevalence of obesity and diabetes in a rural Appalachian region of West Virginia, 50 % of adolescents were obese (Pancoska et al., 2009). Because health behaviors such as physical activity are generally consistent with the core values of a cultural group, an accurate understanding of the values and beliefs that may influence physical activity behaviors is essential.

Evidence suggests that Appalachian individuals view themselves as healthy although they may report being obese and having a sedentary lifestyle. A study of a sample of 1,576 adults attending a state fair in West Virginia found an apparent disconnect between their health perceptions, health status, and health behaviors. Between 57% and 79% of the participants who reported being healthy (74%) also reported poor health behaviors (i.e., a sedentary lifestyle or being a fast food consumer) or the presence of a disease condition such as hypertension or hypercholesterolemia (Griffith, Lovett, Pyle, & Miller, 2011). Promoting positive attitudes toward physical activity may be difficult for individuals who believe they are healthy and may lack the motivation necessary for behavior change. Believing that one is healthy in the context of a helpless attitude toward the future, i.e., fatalism hinders health promotion efforts.

The fatalism construct has been examined with marginalized populations: individuals with low socioeconomic status and less education. Cancer fatalism is a construct used extensively in the public health literature in predicting cancer screenings and prevention and treatment behaviors. The literature presents conflicting evidence regarding the existence of a fatalistic time perspective in the Appalachian culture; however, some studies suggest a fatalistic attitude

may exist. In one study exploring a rural Appalachia community ninth graders' cultural perceptions of healthy weight, students reported that achieving a healthy weight was determined by uncontrollable factors like genetics rather than individual behaviors such as exercise. When "uncontrollable factors" are believed to exert a greater influence than individual behaviors, fatalism exists to some degree. Other students reported exercise was a way to avoid becoming overweight (Williams, Taylor, Wolf, Lawson, & Crespo, 2008). Determining whether or not fatalism exists is essential because a fatalistic time perspective prevents young people from adopting health-promoting attitudes and behaviors.

## *Physical Activity*

### *Built Environments*

Rural areas have limited resources that negatively affect built environments for physical activity (Gangeness, 2009). Built environments in rural communities promote sedentary lifestyles for adolescents. In rural areas long commuting distances to school are not favorable for walking or bicycling (Sallis & Glanz, 2006). In many rural areas roads are narrow and unsafe with few sidewalks. Access to public parks and recreational facilities is limited as is research regarding the influence of the built environment on physical activity among rural youth. One study describing active travel to school (ATS) among 1,552 adolescents in two rural states reported ATS was positively associated with living a short distance from school in a dense residential neighborhood with sidewalks. An active traveler is an individual who walks or cycles to school one or more days per week (Dalton et al., 2011). Because the majority of rural students live farther than three miles from school in neighborhoods that are not densely populated and without sidewalks, other strategies are needed to promote physical activity among rural adolescents.

*Levels of Activity*

Evidence suggests boys are more physically active than girls (Sallis, Rosenberg, & Kerr, 2009). Moderate intensity activity results in increased heart and respiratory rates. Brisk walking is a moderate intensity activity. Running is a vigorous intensity activity resulting in heart and respiratory rates that are much faster than normal (Centers for Disease Control and Prevention, 2010).

In a study of 852 $9^{th}$ and $10^{th}$ graders in the rural, northwestern U.S., 26.9% of students reported no participation in adequate vigorous or moderate physical activity (Prasad, St.Hilaire, Wong, Peterson, & Loftin, 2009). Appalachian youth have reported that exercise can avoid weight gain and suggested schools require participation in extracurricular activities (Williams et al., 2008). However, in a sample of 1,024 Appalachian adolescents in Ohio, 38% reported no participation in moderate or vigorous activity and only 5% met the daily recommendations for physical activity (Hortz, Stevens, Holden, & Petosa, 2009).

*Historical Perspective-Intervention Programs*

Physical activity intervention programs for adolescents date back to 1964. From 1964 to 1967 inclusive a weight control program was offered to 350 obese elementary and junior high school students in a suburban Boston public school. Obesity was measured by triceps skin fold thickness. One hundred eighty-nine participants completed a 5-month program that incldued a special physical activity class, nutrition education, and psychological support. Results indicated female participants had less body weight increase and fewer increases in triceps skin fold thickness than nonparticipating classmates. Physical activity was not an outcome measure; however, it was reported that for obese adolescents to improve exercise habits, an exercise program must be continuously available (Seltzer & Mayer, 1970).

However, effects from these interventions were not long-term. Most interventions continue for less than 12 months (Wofford, 2008). Today, researchers and practitioners are still confronted with the same challenge, to develop intervention programs that produce lifelong effects. To bring about lasting change researchers have recently recommended including individual cognitive affective factors such as intentions, motivation, self-efficacy, and goal-setting in future physical activity intervention planning (Adams, 2009; Brown, 2009; Wilson, 2009). Intention was examined in a qualitative study exploring physical activity in a group of rural middle-school children, 11 to 15 years of age inclusive. When asked to differentiate between exercise and physical activity, one response included, "Exercise is when you mean to do it" (Pearce, Harrell, & McMurray, 2008, p. 172).

Since 1964 hundreds of papers describing physical activity interventions and their effectiveness have been published. In addition, numerous integrative reviews have been published on intervention strategies aimed at increasing physical activity among adolescents to reduce obesity. Integrative reviews provide an analysis and synthesis of the current literature related to a specific area of interest. Reviews also provide direction for future research. Reviews are useful in areas in which a vast amount of literature exists such as physical activity intervention and adolescent obesity (Burns & Grove, 2007).

The literature describes the effectiveness of intervention programs with elementary school children; however, considerably fewer school-based interventions to increase physical activity among adolescents have been studied. Understanding why some adolescents participate in physical activity while others do not is an essential factor when developing interventions aimed at promoting physical activity among adolescents.

Several school-based programs have been designed to decrease the incidence of adolescent

obesity; the majority of the programs lack the effectiveness and sustainability necessary to control or prevent the problem (Huang, Drewnowski, Kumanyika, & Glass, 2009). After reviewing numerous physical activity intervention studies, researchers agree more effective physical activity intervention strategies are needed (Doak et al., 2006; Dobbins, et al., 2001; Peterson & Fox, 2007; Sharma, 2006; Veugelers & Fitzgerald, 2005; Wofford, 2008). The focus of this literature review is to examine current knowledge regarding intervention strategies aimed at increasing physical activity among adolescents.

### *Interventions*

Floriani and Kennedy (2007) found that children are more likely to participate in physical activities they feel they can do (self-efficacy) are more enjoyable and focus on fun rather than weight loss. Barriers to physical activity include unsafe neighborhoods, and long distances to parks, gyms, and playgrounds. Rees et al. (2006) explored 16 school-based physical activity intervention studies to assess barriers to and facilitators of physical activity among young people between 11 and 16 years of age inclusive. A common theme in promoting participation in physical activity was providing a choice of activity. Gender played a central role in program development. Females identified a dislike for school physical education (PE) due to insensitive teachers and the lack of facilities for showering and changing clothes. Barriers to participation in physical activity were feelings of incompetence and being self-conscious about one's body. Facilitators of participation in physical activity included enjoyment, stress relief, and a means of displaying skills. Further investigation is needed to determine what other factors are involved in promoting physical activity among adolescents especially those who feel incompetent and perceive teachers to be insensitive. Practitioners cannot develop appropriate intervention strategies aimed at

behavior modification until they develop an understanding of the physical activity beliefs and behaviors of rural adolescents who are at risk for obesity and obesity-related illnesses.

The majority of physical activity intervention programs are delivered in-school (Felton et al., 2005; McMurray et al., 2002; Shilts, Horowitz, & Townsend, 2009); however, some are delivered after school (Hoerr, Nelson, & Essex-Sorlie, 1988; Melnyk, 2007) during overnight camps, clinically through a health care provider (Dorsey et al., 2010; Pott, Albayrak, Hebebrand, & Pauli-Pott, 2009,), over the internet (Frenn et al., 2005, White et al., 2004), via Email (Parrott, Tennant, Olejnik, & Poudevigne, 2008), or in faith-based settings (Resnicow, Taylor, Baskin, & McCarty, 2005). The majority of the school-based interventions have targeted children in elementary or middle school. Few have been designed specifically for adolescents or implemented in high schools (Felton et al.). Most of the interventions for adolescents target overweight and obese females (Brown, 2009; Robbins et al., 2006).

Some of the interventions developed across the nation to promote physical activity among adolescents include CHIC (McMurray et al., 2002), CATCH, SPARK, and Planet Health (Kahn et al., 2002). These interventions use single or multi-component strategies to guide behavioral change. A single component intervention might target physical activity alone. A multi-component intervention may target a combination of behaviors. After reviewing numerous intervention strategies, Boon and Clydesdale (2005) suggest focusing on one obesity-related factor such as improving physical activity levels. In addition, Peterson and Fox (2007) reviewed 38 school-based intervention studies and found that interventions with simpler approaches led to better outcomes than interventions with multi-component strategies. Outcomes included measures or estimates of adiposity such as Body Mass Index (BMI). Interventions that targeted multiple behaviors such as TV viewing, decreasing consumption of

high fat foods, increasing fruits and vegetables, and increasing physical activity were less effective than interventions focusing on a single behavior.

Interventions should be guided by theoretical frameworks (Stuart, Broome, Smith, & Weaver, 2005). For example, McMurray et al. (2002) did not specify a theoretical approach when examining the effects of an 8-week physical activity intervention on adolescents' blood pressure and body fat. Results indicated exercise had a positive effect on blood pressure and lean body mass; however, the long-term effects of this intervention are unknown. Robbins et al. (2006) used the Health Promotion Model (HPM) and the Transtheoretical Model (TTM) to guide the *Girls on the Move* intervention. Results indicated no difference in the physical activity levels of the intervention and control groups. Recommendations included emphasizing individual goals for physical activity.

Few interventions focus exclusively on adolescents. Many intervention programs include individuals across age ranges including school age children, adolescents, and young adults. When this occurs developmental considerations for all age groups should be addressed. For example, Nemet et al. (2005) examined a multi-component intervention strategy for 54 obese children and adolescents 6 through 16 years of age. Adolescents and their parents participated in the physical activity program and met with dieticians for nutrition education and meal planning during the 3-month program. Participants were divided according to age. The younger children and their parents met with the dietician together; the adolescents and their parents met the dietitian separately, thus recognizing adolescents' need for autonomy and independence in decision making (Lowrey, 1955).

Interventions may be individual, family (Sothern, Schumacher, von Almen, Carlisle & Udall, 2002), or community based (Renger, Steinfelt, & Lazarus, 2002; Schetzina et al.,

2009). A community-based participatory approach, *Winning with Wellness*, increased the in school physical activity levels of rural Appalachian elementary school children. A larger version of this program was recently implemented in six middle schools in the same region (Shetzina, K., personal communication, July 19, 2010).

Interventions may be delivered to overweight or obese individuals or to a group regardless of their weight status. For overweight or obese individuals noticeable weight loss appears to be a motivating factor resulting in continued participation in physical activity following completion of the intervention (Sothern et al., 2002). Culturally-specific interventions have been successful. "Energy Up", a school intervention for Latino teens, promotes weight loss in obese girls in an all-girl high school in New York City (Chehab, Pfeffer, Vargas, Chen, & Irigoyen, 2007). Other culturally-specific interventions have promoted increased physical activity levels and healthy eating in American Indian children (Pathways) and African American mother-daughter dyads (Know Your Body) (Wilson, 2009).

Brooks and Magnusson (2006) explored the experiences of adolescents who went from nonparticipation in PE to participation in a modified physical education program. During focus group interviews students identified self-improvement and skill sharing with younger children as major incentives for moving from nonparticipation to participation in PE. Their desire to focus on self-improvement and skill sharing reflects a desire to improve their self-image contributing to the development of role-identity or identity formation. Identity formation is a primary task of adolescence which involves developing goal-setting skills (Erikson, 1980; Merki, Cleary, & Hubbard, 2003).

### *Goal Setting for Weight*

Goal setting appears to be a promising approach for reducing obesity and maintaining a

healthy body weight in adolescents (Shilts, Horowitz, & Townsend, 2009; Tsiros et al., 2008; White et al., 2004). According to recommendations from the Task Force on Community Preventive Services, an expert group funded by the federal government to evaluate the effectiveness of community-based obesity intervention programs, individually-adapted health behavior skills such as goal setting may be an effective method of increasing the physical activity levels of individuals.

An intervention that has shown promise in increasing physical activity in adolescent girls includes *Weight Winners*, an afterschool program for obese girls 12 to 15 years of age. The focus of this program is weight control through behavior modification that includes individualized goal setting. Participants demonstrated improved exercise behaviors and decreased body weight 9 months after beginning the program (Hoerr, Nelson, & Essex-Sorlie, 1988).

Personal factors associated with physical activity were explored in a longitudinal study of 201 adolescent girls in grades 9 to12 enrolled in urban high schools. Time constraints and social support were the two factors most consistently associated with changes in moderate to vigorous physical activity over an 8-month period. Social support was positively associated with physical activity and time constraints were negatively associated with physical activity, although the results indicated that participants spent significant time watching television, i.e., (23.6 hours a week for the African American participants). Recommendations included more in-depth studies of time constraints as a behavioral factor that should be considered when working with adolescents to improve physical activity patterns (Neumark-Sztainer, Story, Hannan, Tharp, & Rex, 2003).

The subjective manner in which individuals relate to time is termed “time perspective”

(Zimbardo & Boyd, 2008). Time constraints, the perception that one does not have sufficient time, can negatively influence behaviors such as participation in physical activity. In current literature, no studies were found that explored the influence of time perspective on participation in physical activity among adolescents residing in the central Appalachian region. The investigator intends to fill that gap with the current research study.

Goal setting and achievement of goals requires motivation and planning, concepts that lie within the realm of a future time perspective. Research has demonstrated that incorporating a time perspective component into a physical activity intervention program resulted in sustained increases in physical activity behaviors among 81 University of Waterloo students with an average age of 21 years (Fong & Hall, 2003).

### *Time Perspective*

Time perspective has been studied for more than a century. Philosophers, psychologists, and physical scientists have proposed theories explaining how individuals situate themselves within a specific time perspective. In the literature an individual's orientation to time may be referred to as time attitude, time perspective, time orientation, time perception, or temporal orientation. The Father of Psychology, William James (1842-1910), wrote about time perception in *The Principles of Psychology* published in 1890. Since then thousands of studies have examined the effects of time perspective on human behavior. Recently time has been explored as a predictor of health behaviors (Adams, 2009; Bradford, 2010; Daugherty & Brase, 2010; Keough, Zimbardo, & Boyd, 1999; Joireman & Strathman, 2005; Zimbardo, Keough, & Boyd, 1997).

Health behaviors may be considered health-risk behaviors or health-promoting behaviors. Consequences of health-risk or health-promoting behaviors may be immediate

or may not become evident until later. Health-risk behaviors include having multiple sex partners and using alcohol, drugs, and tobacco. Health-promoting behaviors include condom use, seat belt use, healthy food choices, and physical activity (Henson, Carey, Carey, & Maisto, 2006).

Research suggests a predominant present orientation is related to health-risk behaviors such as alcohol, drug, and tobacco use (Keough et al., 1999), risky driving behaviors (Zimbardo et al., 1997), and multiple sexual partners (Henson et al., 2006). A future time perspective is a predictor of positive health practices (Yarcheski, Mahon, Yarcheski, & Cannela, 2004) such as seat belt use and physical activity (Adams & Nettle, 2009; Henson et al., 2006). Haegerich and Tolan (2008) reported adolescents with a positive future orientation were less likely to abuse alcohol and other substances. A future time perspective is positively associated with subjective well-being in Polish adolescents. Fatalism is related to health-destructive behaviors such as less frequent use of seat belts and birth control (Henson et al., 2006).

The most desirable state is a balanced time perspective (BTP); an individual has the ability to appropriately maintain past, present, and future states within the context of routine daily activities. A BTP has been positively associated with happiness and conscious awareness of the present (Drake et al., 2008).

The majority of the research related to time perspective among adolescents has been quantitative. Recently, Mello et al. (2009) used focus groups to gain a better understanding of adolescents' perceptions of their past, present, and future. Participants, a sample of 19 academically-talented students in a western state, viewed the past as historical, the present as fleeting, and the future as mysterious. Suggestions for future research with time perspective included focusing on positive and negative health behaviors in the adolescent population.

Results of physical activity may not be immediately evident. Adolescents prefer instant gratification, immediate results (Lowery, 1955), pleasure-seeking, and "living in the moment" (Mello, Worrell, & Andretta, 2009). However, thinking about the future is a component of positive adolescent development. Adolescents have more autonomy, take responsibility for their actions, and make decisions that affect their adult lives.

The majority of research on time perspective and physical activity have focused on the effects of present or future time perspectives on physical activity because these two perspectives have demonstrated the greatest influence on individual health choices. However, recent research suggests adolescents spend considerable time thinking about the past. In addition, more frequent thinking about the past has been positively correlated with a higher grade point average; therefore, further examination of the relationship between attitudes toward the past and physical activity behaviors is warranted (Mello et al., 2009).

Researchers found a relationship between time perspective and physical activity – future orientation is a motivating factor to engage in physical activity (Luszczynska, Gibbons, Piko, & Tekozel, 2004). Goal setting operationalizes this future orientation. The way in which adolescents perceive their future will impact their goals. Before adolescents set goals for themselves, they must believe they have future opportunities to attain their goals and the ability to plan and develop strategies to reach those goals.

The majority of the research on time orientation among adolescents has focused on topics such as academic achievement (Bowles, 2008; Mello, 2002), occupational objectives (Agache & Trommsdorff, 2007), and subjective well-being (Zaleski, Cycon, & Kurc, 2001). Research suggests adolescents are optimistic and believe they have control of their futures (Nurmi, 2005). However, the influence of time perspective on physical activity behaviors

among adolescents residing in central Appalachia has not been researched.

### *Goal Setting and Physical Activity*

Conscientious planning to meet goals and thoughtfully considering the consequences of one's actions are characteristic of a future time perspective (Zimbardo & Boyd, 1999). Goal setting is a future-oriented behavior change strategy used extensively by adults, e.g., via interventions focused on diet and physical activity. Guided goal setting is a future-oriented strategy designed specifically for adolescents. In a recent intervention study Shilts et al. (2009) reported that guided goal setting was an effective way to improve diet, physical activity, and physical activity self-efficacy in a sample of 8$^{th}$ graders enrolled in a home economics course in urban central California. Guided goal setting encouraged participants to choose a goal behavior from a prepared list directly related to physical activity, self-efficacy, and behavior. One explanation for positive outcomes may be that giving adolescents a choice encourages autonomy and independence that may increase goal commitment. Recommendations included investigating goal setting in future studies with adolescents attending high school and assessing the effect of goal setting on self-efficacy.

Interventions aimed at behavior change to improve physical activity among adolescents may be more successful if they incorporate goal setting as a future time perspective intervention. However, before implementing future-oriented interventions aimed at promoting physical activity among adolescents, it is necessary to understand the time perspective from which adolescents view and live in the world.

A search of the literature yielded one intervention that connected time perspective, participation in physical activity, and adolescents. Fong and Hall (2003) explored the effects of a time perspective intervention on physical activity patterns in a sample of

18 undergraduate students with an average age of 21 years enrolled in three step-aerobics classes. Participants were randomly assigned to one of three groups: Time perspective intervention, goal-setting control intervention, and no treatment. The time perspective and goal-setting groups attended 30 minute classroom sessions for the first 3 weeks of aerobics class. The time perspective intervention included long-term and weekly goal setting strategies that were logically connected. The goal setting intervention included weekly goals set by participants. The no treatment group attended aerobics class without the classroom sessions or goal setting. Time perspective group members were more successful in promoting vigorous physical activity compared to members of the other two groups. The study was repeated with a sample of 81 adolescents average age 21 years. Assignment groups were the same as the previous study. As in the prior study a more positive treatment effect resulted from the time perspective group even as long as 6 months postintervention.

Conclusions related to the effectiveness of intervention strategies that incorporate time perspective strategies cannot be established from two studies. However, time perspective appears to be a concept that may explain or even predict engagement in complex behaviors such as physical activity. If adolescents are goal oriented, are they more likely to participate in physical activity? Time perspective is an individual characteristic that may enhance intervention strategies aimed at promoting physical activity among adolescents; however, the relationship between time perspective and participation in physical activity by adolescents residing in Central Appalachia has not been investigated.

Determining the most cost effective physical activity intervention program for adolescents has not been determined. To promote the effectiveness of an intervention, the characteristics of the target population must inform the intervention strategy (Boon &

Clydesdale, 2005). Health behavior changes to improve physical activity among adolescents may require a future goal-oriented perspective. However, no studies have explored the link between time perspective and participation in physical activity among adolescents residing in Central Appalachia. Understanding the role of time perspective and the physical activity behaviors of adolescents may inform the development of successful programs aimed at increasing physical activity among adolescents in Central Appalachia.

### *The Theory of Planned Behavior*

Physical activity behaviors among adolescents are not well understood. Many authors have used the Theory of Planned Behavior to understand and predict physical activity behaviors of adolescents (Armitage, 2005; Chatzisarantis, Hagger, Wang, & Thogersen-Ntoumani, 2009; Keats, Culos-Reed, Courneya, & McBride, 2007; Motl et al., 2005; Raudsepp, Viira, & Hannus, 2010; Saunders, Motl, Dowda, Dishman, & Pate, 2004). Researchers have suggested integrating time perspective into existing social cognitive models such as the TPB to enhance the predictability and explanatory power of the model (Crockett, Weinman, Hankins, & Marteau, 2009).

In a meta-analytic review exploring the predictive values for the determinants of physical activity within the TPB, Hagger, Chatzisarantis, and Biddle (2002) reported that behavioral attitudes had the greatest influence on intention to participate in physical activity. Individuals' time perspectives may positively or negatively influence their attitudes toward physical activity. For example, an individual with a positive future time perspective may view a healthier future as a desirable outcome of participating in physical activity today. In contrast, an individual with a negative future or present fatalistic time perspective may believe the future is predetermined. The belief that what one does today has no effect on future events is

an attitude that precludes health promotion activities such as physical activity. By understanding the role of time perspective as an influence on attitudes toward physical activity, intervention planners can incorporate activities to promote a positive attitude toward physical activity, thereby according to the TPB increasing intent to participate in physical a activity.

Time perspective has been linked to the TPB through normative and control beliefs (self-efficacy). Epel, Bandura, and Zimbardo (1999) reported a future orientation was positively associated with high self-efficacy behaviors in a study of homeless adults looking for housing and employment. Self-efficacy and planning have been positively correlated with participation in physical activity (Schwarzer et al., 2007). Planning indicates one is thinking about the future. Recently Luszczynska et al. (2010) examined the role of planning on physical activity intentions and behaviors of Polish and Chinese adolescents. Results indicated planning mediated the relationship between intention and behavior; high levels of self-efficacy moderated this relationship.

The relationship between subjective norms and intention to participate in an activity has consistently been weaker than the relationship between intention and attitudes and intention and perceived behavioral control (Saunders, Motl, Dowda, Dishman, & Pate, 2004). However, evidence suggests peer social support increases self-efficacy to participate in physical activity among rural adolescent females (Beets et al., 2007). This is not surprising given the influential effect of peer groups on adolescents.

### *Summary*

Obesity is a significant health problem affecting adolescents worldwide. Adolescents in the Appalachian region are at increased risk for obesity and obesity-related illnesses. This

literature provides evidence regarding current physical activity interventions and the lack of effective interventions specific for adolescents residing in the Appalachian region. The literature reveals a scarcity of studies examining the physical activity behaviors of central Appalachian adolescents and conflicting evidence regarding the presence of fatalism in this population. Although peer support and self-efficacy have been associated with participation in physical activity, the presence of a fatalistic or negative attitude toward the future may preclude participation in physical activity as a health promoting activity. By determining the time perspective associated with behavioral, normative, and control beliefs among central Appalachian adolescents, researchers can better understand physical activity behaviors of this group. Then, practitioners can use this knowledge to develop culturally-specific intervention strategies aimed at increasing physical activity among members of this population.

# CHAPTER 3

# METHODOLOGY

Published research regarding obesity and intervention efforts to increase physical activity behaviors among adolescents reported that goal setting appears to promote physical activity. Goal setting is characteristic of a future time perspective. Time perspective among residents of Central Appalachia was examined. This research explored the following questions, What is the time perspective of adolescents residing in Central Appalachia, fatalistic, futuristic, or hedonistic?, Is there a relationship between time perspective and physical activity attitudes, intentions, and behaviors of adolescents residing in Central Appalachia?, To what extent do time perspective, attitudes, subjective norms, perceived behavioral control, and intentions predict physical activity among adolescents residing in Central Appalachia?

The purpose of this study was to describe the time perspective of adolescents residing in Central Appalachia and to determine if a relationship exists between time perspective and physical activity attitudes, intentions, and behaviors. In addition, this study determined the extent to which attitudes, subjective norms, perceived behavioral control, and intention predict physical activity among these adolescents. Results of this study may guide intervention development aimed at improving the physical activity behaviors of Central Appalachian adolescents.

This chapter describes the pilot study and implications for the dissertation. The research design, sample and setting, instrumentation, data collection procedures, data analysis, and ethical considerations for the dissertation study are also described.

## *Pilot Study*

The purposes of the pilot study were to examine the study survey for item clarity,

instructions, and length of time to complete, reliability of the two measures, time perspective and time attitude, and to inform the dissertation process. Authors use a variety of terms with various definitions to describe how individuals situate themselves within time; therefore, one of the challenges related to research on time perspective is how to reliably measure the concept. Currently, two instruments are used to assess multiple dimensions of time perspective, the Zimbardo Time Perspective Inventory (ZTPI) (Zimbardo & Boyd, 1999) and the Adolescent Time Perspective Inventory (ATPI) (Worrell & Mello, 2009). Both scales were examined during the pilot study with a sample of Central Appalachian adolescents.

*Pilot Sample*

Male and female students in grades 9 through 12 attending high school in Central Appalachia were invited to participate in the pilot study. Inclusion criteria included the ability to read and write English and participate in mild to strenuous exercise. Teachers were asked to identify students with significant physical or intellectual disabilities. Data from the identified students were excluded from the study.

*Pilot Sample Restrictions*

School personnel initially required active parental consent to survey students. Written parental consent forms were sent home with all students attending the high school, grades 9 through 12. After 2 weeks only six signed forms were returned. Reminder letters were sent home with all students. After another 2 weeks only 12 parental consent forms were returned. At this point, the researcher requested that the school board allow passive parental consent for the survey to be administered. After school officials provided written permission to proceed with passive parental consent and the University Institutional Review Board (IRB) approved the study modification, the survey instrument was administered to four first block classes

randomly chosen by the principle including all grade levels, 9 through 12. For each grade level, first block classes were listed by teacher's name. For those classes with multiple grade levels, the greatest number of students determined the grade category of the class. All ninth grade first block teachers' names were written on a slip of paper and folded. One name was drawn, which indicated the room that would be surveyed for the ninth grade. The same procedure was used to determine which rooms would be surveyed for the remainder of the grade levels.

*Setting*

The setting for the pilot study was a rural high school located in a Central Appalachian county that covers 333 square miles and has a population of 16,405 primarily Caucasian (98 %). Mining is the primary employer along with forestry and farming. Other employers include the county school system, a maximum security prison, and retail. The terrain is mountainous with rivers and streams. The county has recreational opportunities including a national park with hiking, fishing, and camping areas. The county is designated as economically distressed by the Appalachian Regional Commission (ARC) based on three economic indicators: 3-year average unemployment rate 2006-2008(5.3%), per capita market income 2007 ($13,488), and poverty rate 2000 (21.3%). To be designated economically distressed the county must be in the top 10% of the worst economically distressed counties in the nation. The 2009 mean household income for residents of the county was $29,151, considerably less than the state mean household income ($59,330) (Appalachian Regional Commission, 2009).

*Health*. Over 21% of individuals within the county live below the poverty level and 2,567 are uninsured. The county ranked 127 of 132 counties in the state by The County Health Rankings, a collaborative project between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute that ranked counties within the 50 states

according to their health outcomes (i.e., mortality and morbidity), and health factors including health behaviors, clinical care, social and economic factors, and physical environment. In this rural county 29% of the county adult residents smoke and 37% are obese (County Health Rankings, 2011).

## *Instrumentation*

### *Time Attitudes*

Time attitudes were measured using the present positive, present negative, future positive, and future negative subscales of the Adolescent Time Perspective Inventory (ATPI). The ATPI is a 30-item self report scale consisting of five-item subscales focusing on positive and negative attitudes toward the past, present, and future. To shorten the survey only the present and future subscales were used. Each subscale has five items scored on a 5-point Likert scale. A score of 5 indicates the participant strongly agreed with the statement; a score of 1 indicates the participant strongly disagreed with the statement. Cronbach's alpha for each subscale was greater than .75 in samples of German and U.S. adolescents (Mello & Worrell, 2010). Subscale means provide a numeric measure of attitude toward time.

### *Time Perspective*

Time perspective was measured using the Zimbardo Time Perspective Inventory (ZTPI). The ZTPI is a 56-item self-report questionnaire consisting of five time perspective subscales that measure time-related attitudes and behaviors. The five subscales include past-negative, present-hedonistic, future, past-positive, and present-fatalistic (Drake, Duncan, Sutherland, Abernethy, & Henry, 2008; Zimbardo & Boyd, 2008). Items are scored on a 5-point Likert scale according to how closely each statement matches the beliefs of participants. A score of 5 indicates the participant strongly agreed with the statement and a score of 1 indicates the

participant strongly disagreed with the statement (Zimbardo et al., 1997; Zimbardo & Boyd, 2008). Zimbardo and Boyd (1999) reported Cronbach's alpha coefficients for subscales ranging from .74 to .82 in a sample of students from 15 years to 62 years of age. Subscale means provided a numeric measure of orientation toward a specific time perspective.

The Past Negative subscale of the ZTPI consists of 10-items. Scores are added and divided by 10 (Zimbardo & Boyd, 2008). The Present Hedonistic subscale of the ZTPI consists of 15-items. Scores are added and divided by 15 (Zimbardo & Boyd, 2008). The Future Time Perspective (FTP) subscale of the ZTPI consists of 13 items. Scores are added, some reverse scored, then divided by 13 (Zimbardo & Boyd, 2008). The Past Positive subscale of the ZTPI consists of nine items. Scores are added, some reverse scored, then divided by 9 (Zimbardo & Boyd, 2008). The Present Fatalistic Time Perspective subscale of the ZTPI consists of nine items. Scores are added and divided by 9 (Zimbardo & Boyd, 2008).

*Physical Activity Attitude*

Attitude toward physical activity was measured by the responses to the following item, "Being physically active would be……..", on a 5 point semantic differential scale using useful-useless, beneficial-harmful, desirable-undesirable, good-bad, enjoyable-unenjoyable, and interesting-boring. This scale has been shown to be reliable (Cronbach's alpha 0.85) among adolescent females ages 13 to17 years (Baker, Little, & Brownell, 2003). The measure of attitude is the mean of the six items.

*Subjective Norm*

Subjective norms, i.e. influence of family and friends, was measured by rating three items about each caring referent on a 5-point Likert scale. Caring referents are mother, father, and friends. The statements include: (1) My (caring referent) would approve of my

being physically active and (2) My (caring referent) thinks I should be physically active. (3) My (caring referent-referents) is-are physically active. Items were rated on a scale of 5 (strongly agree) to 1 (strongly disagree). This scale has been shown to be reliable (Cronbach's alpha 0.75), among adolescent females 13 to17 years of age (Baker et al., 2003). The measure of normative beliefs is the mean of the nine items.

*Perceived Behavioral Control*

Perceived behavioral control was measured by responses to four items: (1)"I control whether or not I am physically active on a regular basis." (2) "If I wanted to, I could easily be physically active on a regular basis." (3) "Being physically active on a regular basis is entirely up to me."(4) "Being physically active on a regular basis is possible." Items were scored on a scale of 5 (strongly agree) to 1(strongly disagree). A modified version of this scale has demonstrated reliability (Cronbach's alpha 0.89) among adolescents 15 to 20 years of age (Keats et al., 2007).

In addition, the following four items measured self-efficacy: (1) "I believe that I have the ability to be physically active on a regular basis" (2) "I am confident that I am capable of being physically active on a regular basis" (3) I am capable of being physically active on a regular basis" (4) "I am certain that I can be physically active on a regular basis." Items were rated on a scale of 5 (strongly agree) to 1 (strongly disagree) A modified version of this scale was shown to be reliable (0.94) among adolescents 15 to 20 years of age (Keats et al., 2007).

*Intention*

Intention was measured by responses to three items: (1) "I plan to participate in vigorous physical activities for 15 minutes a time at least three or more times a week during my free

time for the next five weeks", (2) "I expect I will participate in vigorous physical activities for 15 minutes a time at least three or more times a week during my free time for the next five weeks" and (3) "I intend to participate in vigorous physical activities for 15 minutes a time at least three or more times a week during my free time for the next five weeks." Responses were rated by the participant on a scale of 5 (strongly agree) to 1 (strongly disagree). The measure of intention was the mean of the three items. A similar version of this scale has been shown to be reliable (Cronbach's alpha .70) among adolescents 12 to 14 years of age (Hagger, Chatzisarantis, Biddle, & Orbell, 2001).

*Participation in Physical Activity*

After 5 weeks actual participation in physical activity (PA) was measured. This is the reported period of time when memory is reduced and individuals report actual physical activity rather than intended PA behavior (Chatzisarantis et al., 2009). Participation in physical activity was assessed with the Godin and Shephard's Leisure – Time Exercise Questionnaire (LTEQ) that has demonstrated validity and been used with adolescents (Baker et al., 2003; Godin & Shephard, 1997).

## *Data Collection Procedures*

After determining the number of students per room, the appropriate number of surveys with directions for completion of the survey were placed in a manila envelope and delivered to teachers. Each envelope had directions for administration of the survey. Homeroom teachers gave each student a survey with an attached cover sheet to write their name. Cover sheets were numbered beginning with number one. In addition, cover sheets concealed the answers to the surveys. Students were instructed to complete the surveys and place them back in the manila envelope. After everyone placed their survey in the envelope, the teacher sealed the

envelope. The researcher was available if any questions arose during survey administration. After a designated time period the researcher returned to the room to collect the surveys.

Five weeks after the first survey the second survey, LTEQ, was administered. Students placed their assigned number (provided by the researcher) on the LTEQ. This allowed data regarding physical activity intentions and actual physical activity behavior to be identified for each student.

*Ethical Considerations*

The Institutional Review Board of East Tennessee State University approved the pilot study prior to data collection. Cover sheets were attached to the surveys to provide privacy. In addition, the researcher created a list of student names and corresponding numbers after completion of the first survey. The list was kept in a locked file cabinet in the researcher's office at the University of Virginia's College at Wise until students completed the LTEQ. After the numbers and corresponding surveys were matched, the master list linking the students names with the numbers was shredded.

*Data Analysis*

Descriptive statistics were used to detail the characteristics of the sample and examine means for the ZTPI subscales. A Cronbach's alpha coefficient was calculated for the ATPI and the ZTPI scales and subscales.

*Pilot Study Results*

Descriptive statistics for the sample are displayed in Table 1. Forty-one participants completed both surveys. Twenty-six were male and 15 were female. Their ages ranged from 14 to 18 years. All were Caucasian. Of the total sample, 14 freshman, 10 sophomores, 4 juniors, and 13 seniors participated in the pilot study.

Table 1

*Demographic Characteristics of Pilot Sample*

| Demographic characteristics | N | % |
|---|---|---|
| Gender | | |
| Male | 26 | 63 |
| Female | 15 | 37 |
| **Total** | 41 | 100 |
| Race | | |
| Caucasian | 41 | 100 |
| School year | | |
| Freshman | 14 | 34 |
| Sophomore | 10 | 24 |
| Junior | 4 | 10 |
| Senior | 13 | 32 |
| **Total** | 41 | 100 |

*Cronbach's Alpha*

A Cronbach's alpha value of .7-.8 is acceptable when measuring the internal consistency of a survey instrument (Field, 2005). The 56-item ZTPI Scale had an overall Cronbach's alpha coefficient of .75. The Cronbach's alpha coefficients for the five subscales included the following: Past-Negative, .86; present hedonistic, .78; future, .70; past- positive, .64; and present fatalistic, .65. Cronbach's alpha coefficients for the ATPI were present positive (.88), present negative (.89), future positive (.91), future negative (.68). Table 2 describes the reliabilities of the two measures, ZTPI and ATPI.

Table 2

*Cronbach's Alpha for ZTPI and ATPI*

| Scale | Cronbach's Alpha |
|---|---|
| ZTPI | |
| Subscales | |
| Past negative | .86 |
| Present hedonistic | .78 |
| Future | .70 |
| Past positive | .64 |
| Present fatalistic | .65 |
| ATPI | |
| Subscales | |
| Present positive | .88 |
| Present negative | .89 |
| Future positive | .91 |
| Future negative | .68 |

*Time Perspective*

To answer the question, *What is the time perspective of adolescents residing in Central Appalachia?*, mean scores on the ZTPI were examined. Mean scores indicate the participants were more oriented toward present hedonism and least oriented toward present fatalism. The average scores and standard deviations on the subscales are presented in Table 3.

Table 3

*Mean Scores for ZTPI Subscales*

| Subscales | N | Mean | Std. Deviation |
|---|---|---|---|
| Present hedonistic | 41 | 3.7 | .56 |
| Past positive | 41 | 3.4 | .64 |
| Past negative | 41 | 3.3 | .91 |
| Future | 41 | 3.1 | .58 |
| Present fatalistic | 41 | 2.8 | .64 |

*Conclusions and Modifications from Pilot Study*

The Cronbach's alpha for the ZTPI was acceptable at .75. After the data were reviewed, it was evident that a measure of past time perspective was necessary; therefore, the ZTPI was used to measure time perspective in the dissertation study. Students and teachers did not pose any questions regarding the survey items and all items could be answered within 20 minutes. Time was important because teachers wanted time to complete class activities after the survey was completed. The standard deviation in the past negative subscale indicated more variance in the ratings than in the other subscales. For the main study school officials were asked to accept passive parental consent for administration of the survey.

## *Dissertation Study*

### *Design*

This study used a descriptive correlational design. The specific research questions were:

1. What is the time perspective of adolescents residing in Central Appalachia: fatalistic, futuristic, or hedonistic?

2. Is there a relationship between time perspective and physical activity attitudes, intentions, and behaviors of adolescents residing in Central Appalachia?

3. To what extent do time perspective, attitudes, subjective norms, perceived behavioral control, and intentions predict physical activity among adolescents residing in Central Appalachia?

### *Sample*

A convenience sample of male and female adolescents in grades 9 through 12 attending a high school in Central Appalachia were invited to participate in this study. Inclusion criteria included the ability to read and write English and to participate in mild to strenuous exercise. Teachers were asked to identify students with significant physical or intellectual disabilities.

Data from those students were excluded from the study. Statistical power analysis determined 141 participants were needed for an accurate analysis based on a medium effect size and an alpha coefficient of .05 (Soper, 2011).

### *Setting*

The setting for this study was a city high school located in a rural county in central Appalachia. The city covers 7.5 square miles and has a population of 3,702. Eighty-nine percent of the residents are white and 8% are black. The county surrounding the city is designated as economically at-risk for being distressed by the Appalachian Regional Commission (ARC) according to three economic indicators: 3-year average unemployment rate (2006-2008, 4.3 percent), per capita market income (2007, $17,565), and poverty rate (2000, 20.2%). To be designated at-risk the county must be between the worst 10% and 25% of the nation's worst economically distressed counties. Estimated 2009 median household income for the city was $32,500 in comparison to the state of Virginia at $59,330.

*Health.* Within the county, 230 individuals were diagnosed with major depression, 263 were recent drug users and 310 had no health insurance. Among adults age 25 and older, 24% had not earned a high school diploma and 27% are obese. The county ranks 80 of 132 counties in the state among county health rankings (County Health Rankings, 2011).

### *Data Collection Procedures*

After receiving written permission from school officials to proceed with passive parental consent, information letters were sent home to parents of all students attending the Central Appalachian city high school. After 2 weeks the survey instrument was administered to all students who did not return the signed form opting out of the survey. The same data collection procedures were used as in the pilot study.

*Additional Data Collection*

During the first data collection only 17 of 52 seniors completed the survey due to dual enrollment at a community college and absence from school. Therefore, it was necessary for the researcher to return to the school 2 additional days to collect data from senior students. Guidance counselors provided information regarding the best time period to survey seniors.

## *Ethical Considerations*

This study was reviewed and approved by the East Tennessee State University Institutional Review Board prior to data collection. Data were recorded in such a manner that participants could not be identified directly or indirectly. To assure confidentiality each participant was assigned a number. Data for each participant were identified by the assigned number NOT by name. During school students in grades 9 to 12 were given a letter describing the study. They were asked to take the letter home and ask their parents to read it. Parents were asked to sign the information letter if they did not want their child to participate in the study. Assent forms were given to the teacher with the surveys. Teachers were asked to read the form to the students and ask them to sign if they wished to participate in the study. Written assent was obtained from all students before completion of the surveys. Participants were asked not to write their names on the surveys. In this way their names could not be linked to the answers on the survey. The list of names, assigned numbers, and surveys were locked in a file cabinet in the researcher's office at the University of Virginia's College at Wise until students completed the LTEQ. After the numbers and corresponding surveys were matched, the master list linking the students' names to the numbers was shredded.

## *Data Analysis*

SPSS (Statistical Package of the Social Sciences, version 18), was used to analyze and

present the results. The ZTPI was used to answer research question #1, *What is the time perspective of adolescents residing in Central Appalachia?* Item statements were assigned a value of one through five with "strongly agree" receiving the highest value. A mean value was determined for each subscale. The subscale with the highest mean value determined the time perspective from which the participant generally viewed and lived in the world.

Research question #2, *Is there a relationship between time perspective and physical activity attitudes, intentions, and behaviors of central Appalachian adolescents who participated in this study?* was examined using Pearson's correlation coefficients. Pearson's correlation coefficient, *r*, is reported as a number between -1 and +1. A coefficient of +1 indicates a perfect positive relationship between variables. A coefficient of -1 indicates a perfect negative relationship. Pearson's correlation coefficient, *r*, reflects the strength of the relationships between variables (Field, 2005). Variables in this question included time perspective from the ZTPI and physical activity attitudes, intentions and behaviors.

Research question #3, *To what extent do time perspective, attitudes, subjective norms, perceived behavioral control, and physical activity intentions predict participation in physical activity among adolescents residing in Central Appalachia?* was examined using Pearson's correlation coefficients and multiple regression analysis.

### *Summary*

The pilot study and dissertation study provided valuable insight into study protocol, data collection procedures, and access to students. For the pilot study, it was difficult to obtain written parental permission from parents of high school students to participate in this research study. It is important to develop a strict time line for returning forms and sending reminder letters. Then, school personnel can be approached quickly regarding the need for passive

parental consent. Designating to whom the student should return the form is important. Otherwise, forms appear in the office, classrooms, or gym. Principals and teachers must be supportive of the research for data collection to be successful.

The dissertation study protocol had to be modified to gain timely access to high school students. A large percentage of senior students were enrolled in dual enrollment courses at community colleges, which limited access to this population. The guidance counselor assisted the researcher to gain access to the students by providing valuable information regarding the best day and time to survey students.

# CHAPTER 4

# RESULTS

For this descriptive, correlational study a sample of 193 adolescents attending high school in Central Appalachia were surveyed to determine the time perspective in which they live and view the world and to examine the relationship between time perspective and physical activity attitudes, intentions, and behaviors. The previous chapter described the pilot study and procedures for the dissertation study. This chapter presents the findings of the dissertation study.

## *Demographics*

One hundred eighty-five students comprised the final sample for this study. Eight surveys of 193 were excluded due to large sections of missing data. Large sections of missing data included entire subscales or greater than 50% of the survey. Seven of the eight surveys were completed by students identified by teachers as being challenged by the reading skill necessary to complete the survey. After deletions data from 185 Central Appalachian students were included in this analysis. From these 185 missing data were scattered throughout the survey. For example, a student may have not marked gender or grade but completed all other sections and subscales. The researcher felt this information should not be excluded because the information could be used to answer the research questions; therefore, the N varies throughout the analysis.

Students in the sample ranged in age from 13 to 19 years inclusive, with a mean age of 15.86 (SD 1.24). The sample included 89 (48.1%) males and 94 (50.8%) females for a total of 183. Two surveys had missing gender data. Ninth graders comprised 28.1% of the sample (n=52); $10^{th}$ graders, 28.6% (n=53); 11th graders, 27.0% (n=50); and 12th graders 13.5%

(n=25); five surveys had missing grade data. Participants reported being Caucasian (n=151), or other (n=27) and seven declined to report. Ninety-two percent reported they planned to go to college (n=170) and 63% (n=116) reported participation in a school-sponsored sport. Demographic characteristics are displayed in Table 4.

Table 4

*Demographic Characteristics of the Dissertation Study Sample*

| Demographic characteristics | n | % |
|---|---|---|
| Gender | | |
| Male | 89 | 48.1 |
| Female | 94 | 50.8 |
| *Missing data | 2 | 1.1 |
| Grade in school | | |
| Ninth | 52 | 28.1 |
| Tenth | 53 | 28.6 |
| Eleventh | 50 | 27.0 |
| Twelfth | 25 | 13.5 |
| *Missing data | 5 | 2.7 |
| Race | | |
| Caucasian | 151 | 81.6 |
| Other | 27 | 14.6 |
| *Missing data | 7 | 3.8 |
| Plan to go to College | | |
| Yes | 170 | 91.9 |
| No | 12 | 6.5 |
| *Missing data | 3 | 1.6 |
| Participation in Sports | | |
| Yes | 116 | 62.7 |
| No | 67 | 36.2 |
| *Missing data | 2 | 1.1 |

*Time Perspective*

Question 1, *What is the time perspective of adolescents residing in Central Appalachia, fatalistic, futuristic or hedonistic?* was examined using descriptive statistics. The highest mean score on the time perspective subscales was present hedonism as displayed in Table 5.

Table 5

*Mean Scores for ZTPI Subscales*

| Subscales | N | Mean | Std. Deviation |
|---|---|---|---|
| Present hedonism | 185 | 3.7 | .62 |
| Past positive | 185 | 3.5 | .76 |
| Future | 185 | 3.2 | .62 |
| Past negative | 185 | 3.1 | .78 |
| Present fatalistic | 185 | 2.7 | .75 |

The literature reports differences between younger and older adolescents regarding time perspective (Mello & Worrell, 2006) and physical activity. Therefore, for the purposes of data analysis, participants were grouped as younger ($9^{th}$ and $10^{th}$ graders) or older ($11^{th}$ and $12^{th}$ graders) adolescents. A series of independent t-tests was used to examine whether any significant differences existed between time perspective and demographic variables including age, gender, ethnicity, plan to attend college, and participation in sports . No significant findings were noted for the present hedonistic or past positive time perspective scales. Significant differences were found between males and females regarding future time perspective. Females scored significantly higher than males ($t(181) = 2.40, p = .017$) indicating females are more future oriented than males. Older adolescents tended to be more future oriented than their younger counterparts ($t(178) = 1.94$, $p = .054$). Participants planning

to go to college scored significantly higher on the future time perspective scale than those who did not plan to go to college ($t(180) = 2.704$, $p = .008$). Participants not planning to go to college scored significantly higher on the present fatalism scale than those planning to go to college, ($t(180) = 2.319$, $p = .037$). Participants reporting no participation in a school-sponsored sport scored higher on the past negative time perspective scale than those who reported participation ($t(181) = 2.024$, $p = .044$).

*Time Perspective and Physical Activity Behaviors*

The means and standard deviations for the TPB variables and levels and frequency of physical activity are displayed in Table 6. Mean scores for TPB variables (i.e., physical activity attitudes, influence of family and friends, behavioral control, and intentions) ranged from 4.0 to 4.4. Mean scores for participation in mild, moderate, and strenuous physical activity ranged from 3.6 to 3.9 days per week. The mean score for frequency of participation in physical activity long enough to work up a sweat was 3.7. *The relationship between time perspective and physical activity attitudes, intentions, and behaviors* (Question 2) was examined using Pearson's correlation coefficients. Correlations between the ZTPI scores and physical activity-related behavior scores were very low but in hypothesized directions. Only two correlations achieved values of .20 or higher. A significant but very low inverse relationship existed between the past negative time perspective and physical activity attitudes ($r = -.18$, $p=.016$). Significant but very low positive relationships were found between the past positive time perspective and influence of family and friends ($r = .20$, $p = .006$) and past positive time perspective and behavioral control ($r = .16$, $p = .026$). In addition significant but very low positive correlations were found between present hedonism and behavioral control ($r=.15$, $p =.047$) and present hedonism and strenuous exercise ($r = .16$, $p = .027$). Lastly

significant but very low positive correlations were found between future time perspective and influence of family and friends (r = .17, p =.025) and future time perspective and intention to participate in physical activity (r = .21, p = .004). Correlations of ZTPI scores and physical activity-related behavior scores are displayed in Table 7.

Table 6

*TPB Variables and Physical Activity*

| Variable | N | Mean | Std Deviation |
|---|---|---|---|
| PAA | 185 | 4.4 | 1.02 |
| IFF | 185 | 4.0 | .74 |
| BC | 184 | 4.4 | .78 |
| INT | 183 | 4.0 | 1.18 |
| Stren | 185 | 3.6 | 1.97 |
| Mod | 184 | 3.9 | 1.86 |
| Mild | 183 | 3.9 | 2.35 |
| Freq. P | 169 | 3.7 | 1.12 |

Note: PAA=physical activity attitudes, IFF=influence of family and friends, BC=behavioral control, INT=intention to participate in physical activity, Stren=participation in strenuous exercise, Mod=participation in moderate exercise, Mild=participation in mild exercise, Freq. P=Frequency of participation in weekly exercise long enough to work up a sweat.

Table 7

*Correlations of ZTPI Scores and Physical Activity Related Behavior Scores*

| Variable | N | Past Negative | Past Positive | Present Hedonistic | Present Fatalistic | Future |
|---|---|---|---|---|---|---|
| PAA | 185 | -.18* | .09 | .00 | -.08 | .13 |
| IFF | 185 | -.10 | .20** | -.09 | -.14 | .17* |
| BC | 184 | -.05 | .16* | .15* | .01 | .07 |
| INT | 183 | -.04 | .05 | .04 | -.09 | .21** |
| Stren | 185 | .01 | .03 | .16* | .12 | .02 |
| Mod | 184 | -.10 | -.00 | .01 | -.10 | .07 |
| Mild | 183 | - .05 | -.03 | .05 | -.09 | .09 |
| Freq. P | 169 | .07 | .02 | .03 | -.07 | .13 |

Note: ZTPI = Zimbardo Time Perspective Inventory, PAA=physical activity attitudes, IFF=influence of family and friends, BC=behavioral control, INT=intention to participate in physical activity, Stren=participation in strenuous exercise, Mod=participation in moderate exercise, Mild=participation in mild exercise, Freq. P=Frequency of participation in weekly exercise long enough to work up a sweat.
*Correlation is significant at .05 level
**Correlation is significant at .01 level

Question 3, *To what extent do time perspective, attitudes, subjective norms, perceived behavioral control, and intentions predict physical activity among Central Appalachian adolescents* was examined using stepwise multiple linear regression analysis. Overall, four multiple regression analyses were conducted with reported exercise behaviors (mild, moderate, and strenuous types of exercise and frequency of exercise) as dependent variables. The five time perspectives, physical activity attitudes, behavioral control, influence of family and friends, and intentions were designated as predictors. Time perspective was not a significant predictor for any of the exercise behaviors (Table 8, Model 2). When the five time perspectives were excluded, the TPB variables (physical activity attitudes, behavioral control, influence of family and friends, and intentions) were significant predictors for frequency of exercise and strenuous exercise accounting for 42% and 34% of the variance, respectively (Table 8, Model 1). The TPB variables did not predict mild or moderate exercise behavior (Table 8, Model 1).

Table 8

*Multiple Regression Analysis: Prediction of Exercise Behaviors*

| Dependent Variable | R Square | Adjusted R Square | Standard Error of Estimate |
|---|---|---|---|
| Strenuous Exercise | | | |
| Model 1[a] | .350* | .336* | 1.61 |
| Model 2[b] | .395* | .363* | 1.58 |
| Mild Exercise | | | |
| Model 1[a] | .022 | .000 | 2.36 |
| Model 2[b] | .053 | .003 | 2.35 |
| Moderate Exercise | | | |
| Model 1[a] | .208* | .190* | 1.68 |
| Model 2[b] | .219* | .178* | 1.69 |
| Frequency of Exercise | | | |
| Model 1[a] | .434* | .420* | .849 |
| Model 2[b] | .451* | .419* | .849 |

a. Predictors: Intentions, Physical Activity Attitudes, Behavioral Control, and Influence of Family and Friends.
b. Predictors: Intentions, Physical Activity Attitudes, Behavioral Control, Influence of Family and Friends, Present Fatalistic, Past Positive, Future, Past Negative, and Present Hedonistic.

Note: *p <.001

*Summary of Results*

Central Appalachian adolescents have a tendency toward hedonism with a positive attitude about the past. Significant differences were found between males and females regarding time perspective; females were more future-oriented than males. Participants planning to go to

college were more futuristic; participants not planning to go to college were more fatalistic. Students who did not participate in a school-sponsored sport had more negative attitudes toward the past than those who did participate. Present hedonism significantly correlated with strenuous activity. Future time perspective was significantly correlated with intention to participate in physical activity. Time perspective was not a significant predictor of physical activity behavior. However, the TPB variables (physical activity attitudes, behavioral control, influence of family and friends, and intentions) were significant predictors of strenuous exercise and frequency of exercise.

# CHAPTER 5

# DISCUSSION AND IMPLICATIONS

Health disparities in the Central Appalachian region are a significant problem. A majority of the health problems in the region are attributed to limited physical activity and other risk factors. Examining the physical activity behaviors of the adolescent population is critical if primary care practitioners are to provide culturally and developmentally appropriate intervention strategies. The literature examining physical activity among adolescents in Central Appalachia is scarce (Hortz et al., 2009). This is the first study to examine the influence of time perspective on the physical activity attitudes, intentions, and behaviors of adolescents residing in Central Appalachia. The TPB is one of the most influential cognitive behavioral models used to understand and predict health behaviors; however, it has only been used in a few studies about physical activity among adolescents (Trinh et al., 2008).

Time perspective is a psychological construct that influences daily life choices. Appalachian residents have typically been referred to as fatalistic. Fatalistic individuals believe that fate determines the events of their lives and they have no influence over their "life path". When individuals are fatalistic interventions aimed at promoting behavior change to produce positive health outcomes may be ineffective. Fatalistic individuals often do not choose to participate in daily exercise because they do not consider today's practices as influencing future health. Contrary to the time perspective literature, results of this study indicate the study participants were least likely to be fatalistic and more likely to exhibit hedonistic attitudes. Is this profile a cultural or developmental characteristic? Consistent with Erikson's (1968) theory of adolescent development, study results indicated older adolescents tended to be more future-oriented than younger adolescents.

It is reasonable to believe that adolescents' time perspectives influence developmental processes and vice versa. Hedonism is a present-oriented time perspective characterized by impulsive behavior, risk-taking, and the desire for excitement. Erikson (1968) described the major developmental task of adolescence as achievement of a personal identity. The process of identity formation also contributes to daily life choices. During this time temporary confusion and instability is often present as adolescents consider alternatives before making choices. Adolescents may act impulsively and take risks as part of their identity formation process.

### *Time Perspective and Gender*

Study results indicated gender differences with regard to future time perspective. Females were more future-oriented than males, consistent with time perspective literature. In one study examining the relationship between time perspective, age and gender in academically talented adolescents, Mello and Worrell (2006) found that males had more negative thoughts about the future than females.

### *Time Perspective and Plan to Attend College*

Study results indicated that participants not planning to attend college reported a more fatalistic time perspective and those participants planning to go to college reported a future-oriented perspective. These results are consistent with the literature. Prior research has reported a relationship between academic achievement and time perspective. Positive attitudes toward the future were found to be positively associated with academic achievement and negatively associated with fatalistic attitudes (De Volder & Lens, 1982; Mello & Worrell, 2006). Futuristic individuals may have employment goals they are trying to achieve by completing educational requirements.

### *Time Perspective and Participation in Sports*

It is unclear why participants reporting no participation in a school-sponsored sport may score higher on the past negative time perspective scale. Evidence suggests participation in sports is associated with higher levels of self-concept, perceived behavioral competence, and self-worth (Donaldson, & Ronan, 2006). Past-negative individuals are shyer and have less self-esteem than past-positive individuals (Zimbardo & Boyd, 2008) that may inhibit sports participation. In addition, lack of participation hinders opportunities for memorable experiences.

### *Time Perspective and Physical Activity Behaviors*

Students who scored higher on the past negative time perspective were more likely to score lower on the physical activity attitude scale. In other words, students who reported a negative attitude toward the past also reported negative attitudes toward physical activity. The way in which individuals view the past predicts the future (Zimbardo & Boyd, 2008). When the past is viewed negatively, the future will also be viewed negatively. When the past is negative, physical activity is useless and boring.

Positive correlations were found between past positive orientation and the influence of family and friends and behavioral control based on the TPB. Past positive individuals tend to be more family oriented. They have regular contact with family and often participate in family traditions consistent with Appalachian culture. An important part of Appalachian culture is sharing meals and spending time with family and friends. Potluck suppers, family reunions, county fairs, and birthday parties are traditions that occur regularly (Thompson & Moser, 2006). Participation in traditional events usually promotes pleasant memories. Zimbardo and Boyd (2008) suggest past positive individuals have good memories that

promote a sense of security or personal competence, which enhances perceived behavioral control, the notion that the individual is capable of performing a particular behavior (Fishbein & Ajzen, 2010).

Hedonism was positively correlated with behavioral control and strenuous exercise. Hedonistic individuals like exercise, exhibit a high level of energy, and are often engaged in physical activities. They are impulsive but believe they have control over their behaviors (Zimbardo & Boyd, 2008).

Students who reported a future-oriented time perspective were more likely to report the influence of family and friends and intention to participate in physical activity. However, no relationship was found between future orientation and any of the exercise levels. Time perspective was also not a predictor of physical activity. However, as expected strong support for the predictive power of the variables within the TPB (physical activity attitudes, influence of family and friends, perceived behavioral control, and intention to participate in physical activity) was found (i.e., strenuous exercise and frequency of exercise) among Central Appalachian adolescents. Moderate exercise was predicted by the TPB constructs but to a lesser degree. These findings are congruent with the literature.

The literature supports the TPB constructs as strong predictors of physical activity among adolescents with intention being the strongest predictor (Armitage, 2005; Hagger et al., 2002; Trinh et al., 2008). Planning strategies have mediated the intention-behavior relationship in Polish and Chinese adolescents (Luszczynska, Cao, Mallach, Pietron, Mazurkiewicz, & Schwarzer, 2010). This research suggests adolescents should be encouraged to develop planning and goal setting strategies to transform behavioral intentions to actual exercise behaviors. Because goal setting is not characteristic of past or present time perspectives,

individuals with these time perspectives must transform their time perspective to increase their future orientation. They can begin by developing short-term goals.

Constructs within the TPB were not significant predictors of mild exercise. Perhaps this was due to behavioral incompatibility as discussed by Fishbein and Ajzen (2010). Participants may have intended to participate in physical activity; however, the option of reporting the level of mild physical activity may not have been offered on the exercise questionnaire. Forms of mild physical activity included yoga, archery, fishing, bowling, horseshoes, golf, snowmobiling, and easy walking. Other choices could have been provided including household chores, making beds, vacuuming, or cleaning the car.

### *Study Limitations*

Results of this study are limited to the sample, adolescents attending high school in the Central Appalachian region of the United States, and are not generalizable to other populations. Students who were home schooled or attending an alternative or vocational school were not included in this study. Surveys were lengthy. Students may have become fatigued when completing the survey resulting in missing data. Data collection included instruments and retrospective self-report surveys about exercise participation. Behavioral self-reports may threaten the validity of study results (Fishbein & Ajzen, 2010). Students may feel it is socially desirable to have positive attitudes toward physical activity or participate in physical activity; therefore, they may choose not to report accurately. In addition, students had to recall and report exercise participation during the prior 7-day period which may have affected study validity because recall of the events may not have been accurate.

### *Implications for Future Research*

Participants reported more hedonistic and past positive attitudes. These findings are

inconsistent with the literature on fatalism among Appalachian adolescents. One study examined fatalism among 91 Appalachian adolescents compared to 87 non-Appalachian adolescents. Fatalism was measured in terms of hopelessness and optimism. In the study high levels of hopelessness and low levels of optimism indicated fatalism. Appalachian adolescents scored significantly higher on the hopelessness scale than their non-Appalachian counterparts (Phillips, 2007).

Additional research is needed to determine the predominant time perspective among central Appalachian adolescents. Larger sample sizes with mixed methods designs would provide more in-depth information. For example, fatalism is not dichotomous. Individuals cannot be described as either fatalistic or not fatalistic. Many circumstances surround the performance of health behaviors by adolescents. Rural adolescents depend upon parents or relatives to provide transportation to and from sports practices and games, which may not be affordable. Time perspective is only one psychological construct. It is important to identify other variables that play a role in the performance of exercise behaviors when planning intervention programs.

It is important to understand the extent to which time perspective changes across time and the relationships between time perspective and other behaviors (i.e., physical activity, plans to attend college). For example, does adolescents' time perspective change as they enter adulthood? Future oriented students were associated with plans to attend college and intent to participate in physical activity. Do future oriented adolescents remain future-oriented as they enter adulthood? Does the relationship between future-orientation and plans to attend college and intention to participate in physical activity continue into adulthood? If these relationships remain true, this information could be helpful to health care practitioners providing care to

rural adolescents. Encouraging adolescents to remain futuristic into adulthood could improve their health and education outcomes.

### *Implications for Nursing Practice*

The findings from this study can be used to plan effective interventions aimed at increasing perceived behavioral control and intentions to participate in physical activity among Central Appalachian adolescents. Obesity is a major healthcare problem for adolescents. Due to the increased prevalence of obesity, many adolescents are suffering from chronic disease processes and psychosocial challenges. Recent research indicates obese adolescents are more likely to use cigarettes and chewing tobacco and less likely to wear seatbelts (Polfuss, Liebhart, & Greenley, 2011), risk-taking behaviors consistent with a present hedonistic time perspective. Nurse practitioners providing care for rural adolescents could provide education and anticipatory guidance regarding the importance of setting goals and planning for daily exercise activities. Outpatient practices could encourage goal-setting and charting daily exercise. Present and past oriented patients will need more attention and support. Regular phone calls could serve as consistent infusions of encouragement and also be a reminder of the need for daily exercise and goal achievement.

Knowledge regarding the role of time perspective on the health of rural adolescents is valuable information for the community health nurse providing care to this population. Community health nurses can provide education to groups and individuals regarding the role of time perspective on health outcomes. Community health nurses can guide individuals to become aware of their time perspective and how they can shape their perspective to promote positive health outcomes.

Many physical activity interventions are school-based with varying degrees of involvement

by the school nurse. School nurses must be aware of the cultural implications of time perspective and the relationship between time perspective and intention to participate in physical activity. School nurses are in a unique position to encourage daily physical activity. The school nurse could encourage students to keep exercise diaries. Free exercise diaries can be found at kidshealth.org. The school nurse could provide diaries and track progress.

### *Implications for Nursing Education*

It is important to introduce the concept of time perspective to nursing students. Time perspective, the way an individual lives in and views the world, is a cultural characteristic and evidence suggests providing culturally appropriate care will improve patient outcomes (Waite & Calamaro, 2010). By understanding the role of time perspective on decision making about health promotion and prevention of disease, students develop a new perspective that enables them to work better with patients from diverse cultural backgrounds. For example, students are taught to teach health promotion activities when working with clients. Students may teach their clients the importance of physical activity. However, understanding why clients may or may not follow the recommendations of health care practitioners is important. One reason may be that clients are living only in the present. As is the case for many in the Central Appalachian region, clients may have little education or low socioeconomic status that prohibits them from thinking or acting for the future. Their primary concern is surviving today. Students must learn to modify their teaching plans for clients needing daily exercise because their clients are living for today with little thought of tomorrow. Teaching plans that focus on achieving daily goals rather than a weekly exercise program might be more appropriate for these clients. For example, walking five times around the house every morning is a simple achievable goal for most clients.

### *Educational Outcomes*

Overall, this study provides additional understanding of time perspective and the physical activity attitudes, intentions, and behaviors of Central Appalachian adolescents. Results of this study could inform future intervention strategies aimed at increasing the physical activity levels of this population. In addition, study findings support the need for future research examining time perspective and educational outcomes for adolescents in the Central Appalachian region. Study results could be used to inform high school guidance counselors, principals, and teachers. Because students who reported they planned to go to college were more future oriented, it may be useful to incorporate future oriented practices in the high school curriculum for each grade level. Future oriented students most likely have future oriented parents. Future oriented practices such as making "to do" lists, goal setting and charting progress toward a goal may promote positive attitudes toward attending college for all high school students.

### *Implications for Health Policy*

Creating school environments that promote physical activity among students and teachers is a policy issue. Unfortunately opportunities for physical activity during the school day are limited because teachers feel the urgency of meeting No Child Left Behind measures. However, studies have demonstrated a positive correlation between standardized test scores and physical fitness levels; therefore, many states have implemented policies aimed at improving the physical health of students (Ehrlich, 2008).

### *Conclusions*

Promoting adolescent health in the Central Appalachian region is of the utmost importance. The incidence of substance abuse and mental health problems is alarmingly high in this region

and it is increasingly difficult for adolescents to earn a high school diploma or secure a job. In addition to these concerns, adolescent obesity has resulted in more physical and mental health problems. The role of time perspective is unclear and needs further investigation. However, it is encouraging to realize the predictive ability of the TPB in this sample. Efforts should be aimed at improving physical activity attitudes, behavioral control, influence of family and friends, and intentions to participate as these variables are important determinants of physical activity. It may be difficult to improve the influence of family and friends; however, a better understanding of the role of family and friends regarding physical activity will be important when developing and implementing physical activity intervention programs for adolescents in Central Appalachia.

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# APPENDICES

## Appendix A: Parent Letter

Dear Parent:

Your child will be invited to participate in a research study that will help researchers learn how opinions about time affect the physical activity behaviors of central Appalachian adolescents. This study fulfills my dissertation requirements for a Doctor of Philosophy (PhD) in Nursing at East Tennessee State University. I am a nursing instructor at the University of Virginia's College at Wise and this dissertation is titled, "The Influence of Time Perspective on the Physical Activity Intentions and Behaviors of Central Appalachian Adolescents."

The purpose of this research is to determine how opinions about time affect the physical activity behaviors of adolescents living in central Appalachia. Findings from this study will help researchers understand factors that influence physical activity behaviors. Information from this study will guide the development of future programs aimed at increasing physical activity levels among adolescents.

**Your child's participation in this study is completely voluntary**. Participation in this study requires completing two surveys, five weeks apart, during school. The surveys should take no longer than 15 minutes to complete. A copy of the surveys can be made available to you at your request. (See my number below) Your child's decision as to whether or not to participate will have no influence on their present or future status at school. Your child's grades will **NOT** be affected by participation or non-participation. Your child may refuse to participate at any time during the research process.

There are no direct benefits to your child for completion of the surveys. In addition, there are no known or anticipated risks of participating in this study. There will be no cost for your child's participation in the study. Your child will not be paid for participating.

The surveys are **anonymous**. Responses are **confidential.** In order to ensure confidentiality, your child will be assigned a number. Responses to the two surveys will be identified by the number, NOT by your child's name. Therefore, there is no way to link your child to their answers on the surveys.

If you have any questions regarding this research or your child's rights as a participant, you may contact me at (276) 926-5668 or (276) 328-0242. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at (423) 439-6055 or (423) 439-6002. Results of this survey will be shared with school officials, may be published or presented at meetings in summary form without naming your child as a participant.

**If you DO NOT wish for your child to participate in this research study, please sign below and ask your child to return this form within one week to the teacher who gave it to them.**

**Child's name: _____**

**Parent signature: _____Date: _____**

**If you choose to allow your child to participate in this important study, you do not need to return the form. Thank you for allowing your child to participate in this important study.**

**Tauna Gulley**

Appendix B: Student Letter

Dear Student:

You are invited to participate in a research study to determine how opinions about time affect the physical activity behaviors of central Appalachian adolescents. This study fulfills my dissertation requirements for a Doctor of Philosophy (PhD) in Nursing at East Tennessee State University. I am a nursing instructor at the University of Virginia's College at Wise and this dissertation is titled, "The Influence of Time Perspective on the Physical Activity Intentions and Behaviors of Central Appalachian Adolescents."

The purpose of this research is to determine how opinions toward time affect the physical activity behaviors of adolescents living in central Appalachia. Findings from this study will help researchers understand factors that influence physical activity behaviors. Information from this study will guide the development of future programs aimed at increasing physical activity levels among adolescents.

**Your participation in this study is completely voluntary**. Participation in this study requires completing two surveys during your homeroom period, one today and another in five weeks. Today's survey should take no longer than 15 minutes to complete. The second survey should take no longer than five minutes. If you choose not to participate, return your blank survey to your homeroom teacher when others turn theirs in. Your decision as to whether or not to complete this survey will have no influence on your present or future status at this school. Your grades will **NOT** be affected by participation or non-participation. You may refuse to participate at any time during the research process.

There are no direct benefits to you for completion of this survey. In addition, there are no known or anticipated risks of participating in this study. There will be no cost for your participation in the study. You will not be paid for your participation.

Do not place your name on the surveys. The surveys are **anonymous**. Responses are co**nfidential.** In order to ensure confidentiality, you will be assigned a number. Responses to the two surveys will be identified by the number NOT by your name. Therefore, there is no way to link you to your answers on the surveys.

If you have any questions regarding this research or your rights as a participant, you may contact me at (276) 926-5668 or (276) 328-0242. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at (423) 439-6055 or (423) 439-6002. Results of this survey will be shared with school officials, may be published or presented at meetings in summary form without naming you as a participant.

Once again, thank you for participating in this study. Without your responses, this study would not be possible.

Sincerely,
Tauna Gulley

Student signature _____

## Appendix C: Directions for Completion of Survey

Homeroom Teachers:

Thank you for taking the time to administer this survey.

The survey will take 15 minutes to complete. If you have any questions, I will be in the main office during completion of the surveys.

Please give every student a survey packet and pencil. Ask students to answer every question.

Ask students to place completed surveys back in the manila envelope. When all students are finished, seal the envelope.

I will come to the homerooms to collect the surveys.

Thank you

Tauna Gulley

Appendix D: Cover Sheet

The Influence of Time Perspective on the Physical Activity Intentions and Behaviors of Central Appalachian Adolescents

Number_____

Name _____

Appendix E: Time Perspective and Physical Activity Survey

## Section 1: Zimbardo Time Perspective Inventory

Read each item carefully, and circle the number beside each statement that most nearly matches your feelings. Your answer choices range from Strongly Agree (5) to Strongly Disagree (1).

| | **Strongly Agree** | **Strongly Disagree** |
|---|---|---|
| 1. I believe that getting together with one's friends to party is one of life's important pleasures | 5…….4…….3…….2…….1 | |
| 2. Familiar childhood sights, sounds, smells often bring back a flood of wonderful memories | 5…….4…….3…….2…….1 | |
| 3. Fate determines much of my life. | 5…….4…….3…….2…….1 | |
| 4. I often think of what I should have done differently in my life | 5…….4…….3…….2…….1 | |
| 5.My decisions are mostly influenced by people and things around me | 5…….4…….3…….2…….1 | |
| 6. I believe that a person's day should be planned ahead each morning. | 5…….4…….3…….2…….1 | |
| 7. It gives me pleasure to think about my past. | 5…….4…….3…….2…….1 | |
| 8. I do things impulsively. | 5…….4…….3…….2…….1 | |
| 9. If things don't get done on time, I don't worry about it. | 5…….4…….3…….2…….1 | |
| 10. When I want to achieve something, I set goals and consider specific means for reaching those goals. | 5…….4…….3…….2…….1 | |
| 11.On balance, there is much more good to recall than bad in my past | 5…….4…….3…….2…….1 | |
| 12. When listening to my favorite music, I often lose track of time. | 5…….4…….3…….2…….1 | |

## Section 1: Zimbardo Time Perspective Inventory

Read each item carefully, and circle the number beside each statement that most nearly matches your feelings. Your answer choices range from Strongly Agree (5) to Strongly Disagree (1).

| | **Strongly Agree** | **Strongly Disagree** |
|---|---|---|
| 13. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play. | 5…….4…….3…….2…….1 | |
| 14. Since whatever will be will be, it doesn't really matter what I do. | 5…….4…….3…….2…….1 | |
| 15. I enjoy stories about how things used to be in the "good old times." | 5…….4…….3…….2…….1 | |
| 16. Painful past experiences keep being replayed in my mind. | 5…….4…….3…….2…….1 | |
| 17. I try to live my life as fully as possible, one day at a time. | 5…….4…….3…….2…….1 | |
| 18. It upsets me to be late for appointments. | 5…….4…….3…….2…….1 | |
| 19. Ideally, I would live each day as if it were my last. | 5…….4…….3…….2…….1 | |
| 20. Happy memories of good times spring readily to mind. | 5…….4…….3…….2…….1 | |
| 21. I meet my obligations to friends and authorities on time. | 5…….4…….3…….2…….1 | |
| 22. I've taken my share of abuse and rejection in the past | 5…….4…….3…….2…….1 | |
| 23. I make decisions on the spur of the moment. | 5…….4…….3…….2…….1 | |
| 24. I take each day as it is rather than try to plan it out | 5…….4…….3…….2…….1 | |

## Section 1: Zimbardo Time Perspective Inventory

Read each item carefully, and circle the number beside each statement that most nearly matches your feelings. Your answer choices range from Strongly Agree (5) to Strongly Disagree (1).

| | **Strongly Agree** | **Strongly Disagree** |
|---|---|---|
| 25. The past has too many unpleasant memories that I prefer not to think about. | 5…….4…….3…….2…….1 | |
| 26. It is important to put excitement in my life. | 5…….4…….3…….2…….1 | |
| 27. I've made mistakes in the past that I wish I could undo. | 5…….4…….3…….2…….1 | |
| 28. I feel that it's more important to enjoy what you're doing than to get work done on time. | 5…….4…….3…….2…….1 | |
| 29. I get nostalgic about my childhood | 5…….4…….3…….2…….1 | |
| 30. Before making a decision, I weigh the costs against the benefits. | 5…….4…….3…….2…….1 | |
| 31. Taking risks keeps my life from becoming boring. | 5…….4…….3…….2…….1 | |
| 32. It is more important for me to enjoy life's journey than to focus only on the destination. | 5…….4…….3…….2…….1 | |
| 33. Things rarely work out as I expected. | 5…….4…….3…….2…….1 | |
| 34. It's hard for me to forget unpleasant images of my youth. | 5…….4…….3…….2…….1 | |
| 35. It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes, and products. | 5…….4…….3…….2…….1 | |
| 36. Even when I am enjoying the present, I am drawn back to comparisons with similar past experiences. | 5…….4…….3…….2…….1 | |
| 37. You can't really plan for the future because things change so much. | 5…….4…….3…….2…….1 | |

## Section 1: Zimbardo Time Perspective Inventory

Read each item carefully, and circle the number beside each statement that most nearly matches your feelings. Your answer choices range from Strongly Agree (5) to Strongly Disagree (1).

| | **Strongly Agree** | **Strongly Disagree** |
|---|---|---|
| 38. My life path is controlled by forces I cannot influence. | 5…….4…….3…….2…….1 | |
| 39. It doesn't make sense to worry about the future, since there is nothing that I can do about it anyway. | 5…….4…….3…….2…….1 | |
| 40. I complete projects on time by making steady progress. | 5…….4…….3…….2…….1 | |
| 41. I find myself tuning out when family members talk About the way things used to be. | 5…….4…….3…….2…….1 | |
| 42. I take risks to put excitement in my life. | 5…….4…….3…….2…….1 | |
| 43. I make lists of things to do. | 5…….4…….3…….2…….1 | |
| 44. I often follow my heart more than my head. | 5…….4…….3…….2…….1 | |
| 45. I am able to resist temptations when I know that there is work to be done. | 5…….4…….3…….2…….1 | |
| 46. I find myself getting swept up in the excitement of the moment. | 5…….4…….3…….2…….1 | |
| 47. Life today is too complicated; I would prefer the simpler life of the past. | 5…….4…….3…….2…….1 | |
| 48. I prefer friends who are spontaneous rather than predictable. | 5…….4…….3…….2…….1 | |
| 49. I like family rituals and traditions that are regularly repeated. | 5…….4…….3…….2……..1 | |
| 50. I think about the bad things that have happened to me in the past. | 5…….4…….3…….2…….1 | |

## Section 1: Zimbardo Time Perspective Inventory

Read each item carefully, and circle the number beside each statement that most nearly matches your feelings. Your answer choices range from Strongly Agree (5) to Strongly Disagree (1).

| | **Strongly Agree** | **Strongly Disagree** |
|---|---|---|
| 51. I keep working at difficult, uninteresting tasks as if they will help me get ahead. | 5…….4…….3…….2…….1 | |
| 52. Spending what I earn on pleasures today is better than saving for tomorrow's security. | 5…….4…….3…….2…….1 | |
| 53. Often luck pays off better than hard work. | 5…….4…….3…….2…….1 | |
| 54. I think about the good things that I have Missed out on in my life | 5…….4…….3…….2…….1 | |
| 55. I like my close relationships to passionate. | 5…….4…….3…….2…….1 | |
| 56. There will always be time to catch up on my work. | 5…….4…….3…….2…….1 | |

## Section 2: Time Attitudes

Read each item carefully, and circle the number beside each statement that most nearly matches your feelings. Your answer choices range from Strongly Agree (5) to Strongly Disagree (1).

| | **Strongly Agree** | | | | **Strongly Disagree** |
|---|---|---|---|---|---|
| 1. I look forward to my future | 5 | 4 | 3 | 2 | 1 |
| 2. I am not satisfied with my life right now | 5 | 4 | 3 | 2 | 1 |
| 3. I doubt I will make something of myself | 5 | 4 | 3 | 2 | 1 |
| 4. I am happy with my current life | 5 | 4 | 3 | 2 | 1 |
| 5. My future makes me happy | 5 | 4 | 3 | 2 | 1 |
| 6. I have negative feelings about my current situation | 5 | 4 | 3 | 2 | 1 |
| 7. I don't think I'll amount to much when I grow up | 5 | 4 | 3 | 2 | 1 |
| 8. I am pleased with the present | 5 | 4 | 3 | 2 | 1 |
| 9. My future makes me smile | 5 | 4 | 3 | 2 | 1 |
| 10. I am content with the present | 5 | 4 | 3 | 2 | 1 |
| 11. Thinking about my future makes me sad | 5 | 4 | 3 | 2 | 1 |
| 12. Overall, I feel happy about what I am doing right now | 5 | 4 | 3 | 2 | 1 |
| 13. I am excited about my future | 5 | 4 | 3 | 2 | 1 |
| 14. I am not satisfied with my present | 5 | 4 | 3 | 2 | 1 |
| 15. I don't like to think about my future | 5 | 4 | 3 | 2 | 1 |
| 16. I am not happy with my present life | 5 | 4 | 3 | 2 | 1 |
| 17. Thinking ahead is pointless | 5 | 4 | 3 | 2 | 1 |
| 18. Overall, I feel happy with my life right now | 5 | 4 | 3 | 2 | 1 |
| 19. Thinking about my future excites me | 5 | 4 | 3 | 2 | 1 |
| 20. My current life worries me | 5 | 4 | 3 | 2 | 1 |

## Section 3: Physical Activity Attitude

Circle the number beside each statement which most nearly matches your feelings.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | useful | | | | useless |
| 1. | Physical activity is | 5 | 4 | 3 | 2 | 1 |
| | | beneficial | | | | harmful |
| 2. | Physical activity is | 5 | 4 | 3 | 2 | 1 |
| | | desirable | | | | undesirable |
| 3. | Physical activity is | 5 | 4 | 3 | 2 | 1 |
| | | good | | | | bad |
| 4. | Physical activity is | 5 | 4 | 3 | 2 | 1 |
| | | enjoyable | | | | not enjoyable |
| 5. | Physical activity is | 5 | 4 | 3 | 2 | 1 |
| | | interesting | | | | boring |
| 6. | Physical activity is | 5 | 4 | 3 | 2 | 1 |

## Section 4: Influence of Family and Friends

Circle the number beside each item that most nearly reflects your perceptions.

| | **Strongly agree** | | | | **Strongly disagree** |
|---|---|---|---|---|---|
| 1. My mother would approve of my being physically active. | 5 | 4 | 3 | 2 | 1 |
| 2. My father would approve of my being physically active. | 5 | 4 | 3 | 2 | 1 |
| 3. My friends would approve of my being physically active. | 5 | 4 | 3 | 2 | 1 |
| 4. My mother thinks I should be physically active. | 5 | 4 | 3 | 2 | 1 |
| 5. My father thinks I should be physically active. | 5 | 4 | 3 | 2 | 1 |
| 6. My friends think I should be physically active. | 5 | 4 | 3 | 2 | 1 |
| 7. My mother is physically active. | 5 | 4 | 3 | 2 | 1 |
| 8. My father is physically active. | 5 | 4 | 3 | 2 | 1 |
| 9. My friends are physically active. | 5 | 4 | 3 | 2 | 1 |

## Section 5: Behavioral Control

Circle the number beside each item that most nearly reflects your perceptions regarding behavioral control.

| | **Strongly agree** | | | | **Strongly disagree** |
|---|---|---|---|---|---|
| 1. I control whether or not I am physically active on a regular basis. | 5 | 4 | 3 | 2 | 1 |
| 2. If I wanted to, I could easily be physically active on a regular basis. | 5 | 4 | 3 | 2 | 1 |
| 3. Being physically active on a regular basis is entirely up to me. | 5 | 4 | 3 | 2 | 1 |
| 4. Being physically active on a regular basis is possible. | 5 | 4 | 3 | 2 | 1 |
| 5. I believe that I have the ability to be physically active on a regular basis. | 5 | 4 | 3 | 2 | 1 |
| 6. I am confident that I am capable of being physically active on a regular basis. | 5 | 4 | 3 | 2 | 1 |
| 7. I am capable of being physically active on a regular basis | 5 | 4 | 3 | 2 | 1 |
| 8. I am certain that I can be physically active on a regular basis. | 5 | 4 | 3 | 2 | 1 |

## Section 6: Intentions

Circle the number beside each item that most nearly reflects your perceptions of intent to participate in physical activity.

| | **Strongly Agree** | | | | **Strongly Disagree** |
|---|---|---|---|---|---|
| 1. I plan to participate in vigorous physical activity for 15 minutes at a time at least three or more times a week during my free time for the next five weeks. | 5 | 4 | 3 | 2 | 1 |
| 2. I expect to participate in vigorous physical activity for 15 minutes at a time at least three or more times a week during my free time for the next five weeks | 5 | 4 | 3 | 2 | 1 |
| 3. I intend to participate in vigorous physical activity for 15 minutes at a time at least three or more times a week during my free time for the next five weeks. | 5 | 4 | 3 | 2 | 1 |

## Section 7: Demographic Section

Please answer all questions.

1. Place a check beside your school: _____John I Burton (Norton)
   _____Clintwood High School
2. Place a circle around your grade in school: 9, 10, 11, 12
3. Indicate your gender (Check one): _____Male, _____Female
4. How old were you on your last birthday? _____Years
5. Indicate your height in inches: _____inches.
6. Indicate your weight in pounds:_____pounds.
7. Do you participate in a school sponsored sport (s)?
   (check one): _____Yes,_____No.

## Section 7: Demographic Section

8. Are you enrolled in a physical education class (es)?
   (check one):_____Yes, _____No

9. Do you plan to attend college?
   (check one): _____Yes, _____No

10. Check the highest grade or year of school completed

____6 or less
____7-11
____high school grad
____13-15
____college grad
____17-18 or more than 18

11. Type of insurance coverage (check one)

    _____public (Medicare/Medicaid)
    _____private
    _____military
    _____none

12. Do you consider yourself to be of Hispanic origin such as Mexican, Puerto Rican, Cuban or other Spanish background?
    (check one): ____Yes,_____No

13. What race do you consider yourself to be? (check one)

    _____White
    _____African American
    _____Native/Asian/Pacific/other
    _____Don't know
    _____Refused

14. What is your zip code? _____

## Section 7: Demographic Section

15. How far must you travel for EMERGENCY medical care? In answering this question think about a potential emergency such as a serious cut from broken glass. How far (ONE WAY) must you travel to get assistance such as stitches? Please try to be as accurate as possible when recording the distance, for example 8 city block or 3 ¾ miles, etc.

    _____Number of Miles (one way)
    _____Approximate Travel Time (one way)

16. Please describe your source of emergency care (For example: nurse practitioner, hospital, physician's office, etc.)_____.

17. I would describe myself as living: (Check only ONE response)

    _____on a farm/ranch
    _____in a rural area (not a farm/ranch)
    _____in a small rural town
    _____in a small town
    _____in a medium size city
    _____in a large city
    _____in a suburban area
    _____in a major metropolitan area

## Section 8: Exercise Questionnaire

1. During a 7-Day period (a week), how many times (days per week) on the average do you do the following kinds of exercise for more than 15 minutes during your free time (write on each line the appropriate number).

**Times (Days) per Week**

**a. STRENUOUS EXERCISE**
**(HEART BEATS RAPIDLY)** _____
(e.g., running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller skating, vigorous swimming, vigorous long distance bicycling)

**b. MODERATE EXERCISE**
**(NOT EXHAUSTING)** _____
(e.g., fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing)

**c. MILD EXERCISE**
**(MINIMAL EFFORT)** _____
(e.g., yoga, archery, fishing from river bank, bowling, horseshoes, golf, snow-mobiling, easy walking)

2. During a typical 7-Day period (a week), in your leisure time, how often do you engage in any regular activity long enough to work up a sweat (heart beats rapidly)? Please circle the appropriate number.

Often Sometimes Never

5……4……3……2……1

# Appendix F: Protection of Human Subjects: Pilot Study

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707
Phone: (423) 439-6053 Fax: (423) 439-6060

**IRB APPROVAL – Minor Modification**

January 11, 2011

Ms. Tauna Gulley
1743 Brush Creek Road
Clintwood, VA 24228

RE: The Influence of Time Perspective on the Physical Activity Intentions and Behaviors among Central Appalachian Adolescents: A Pilot Study
IRB #: c0910.7s

On January 7, 2011, a final approval was granted for the minor modification listed below. The minor modification will be reported to the convened board on the next agenda.

- Modification request to use passive parental consent.Revised Parental Permission (no version date stamped approved 01/07/11)Revised Student Assent (no version date)Previously approved Parent Letter and Student Assent

The **stamped, approved ICD(s)** listed below has been stamped with the approval and expiration date and must be copied and provided to each participant prior to participant enrollment:

- Parent Letter (no version date stamped approved 01/07/2011)
- Student Assent (no version date stamped approved 01/07/2011)

Federal regulations require that the original copy of the participant's consent be maintained in the principal investigator's files and that a copy is given to the subject at the time of consent.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research cannot be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following its implementation (within 10

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Accredited since December 2005

working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,
Chris Ayres, Chair
ETSU Campus IRB

# Appendix G: Protection of Human Subjects: Main Study

East Tennessee State University
Office for the Protection of Human Research Subjects Box 70565 Johnson City, Tennessee 37614-1707
Phone: (423) 439-6053 Fax: (423) 439-6060

**IRB APPROVAL – Minor Modification**

March 17, 2011

Ms. Tauna Gulley
1743 Brush Creek Road
Clintwood, VA 24228

RE: The Influence of Time Perspective on the Physical Activity Intentions and Behaviors among Central Appalachian Adolescents: A Pilot Study
IRB #: c0910.7sw

On March 16, 2011, a final approval was granted for the minor modification listed below. The minor modification will be reported to the convened board on the next agenda.

- Modification request to complete the main study using John I. Burton High School students in Norton, VA.Revised Narrative (03/01/11 stamped approved 3/16/11); Revised Survey; Permission from Norton City Schools Superintendent

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research cannot be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following its implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,
Chris Ayres, Chair
ETSU Campus IRB

Full AAHRPP Accreditation

*Accredited Since December 2005*

Appendix H: School Permission: Pilot Study

# Dickenson County Public Schools

P.O. Box 1127, Volunteer Street
Clintwood, Virginia 24228
Fax (276) 926-6374 (276) 926-4643
"Pursuing Academic Excellence"

Haydee Robinson
Superintendent

The Torch of Knowledge Dispels
The Darkness of Ignorance

December 17, 2010

To Whom It May Concern:

Tauna Gulley has permission to complete the research study titled, *The Influence of Time Perspective on the Physical Activity, Intentions, and Behaviors of Central Appalachian Adolescents*, in Dickenson County Public Schools. The study will be administered at Clintwood High School located in Clintwood, Virginia. The Dickenson County School Board has granted permission for the study to proceed with passive parental consent.

Respectfully,

Mike Setser
Supervisor of Compliance
Dickenson County Public Schools

Appendix I: School Permission: Main Study

NORTON CITY SCHOOLS

PO BOX 498
22 TENTH STREET
NORTON, VA 24273-0498

DIVISION SUPERINTENDENT
JEFF COMER



February 28, 2011

To Whom It May Concern:

This letter is notification that Norton City Schools is granting permission for Tauna Gulley to conduct a research study with students in grades 9-12 at J.I. Burton High School pertaining to The Influence of Time Perspective on the Physical Activity Intentions and Behaviors of Central Appalachian Adolescents.

Please feel free to contact me at 276-679-2330 if I can provide additional information.

Sincerely,

Jeff Comer, Ed.D.
Superintendent

www.nortoncityschools.org 276-679-2330 OR 276-679-4586 FAX 276-679-4315

# VITA

## TAUNA F. GULLEY

| | |
|---|---|
| Personal Data: | Date of Birth: October 15, 1966 |
| | Place of Birth: Alexandria, Va. |
| Education: | PhD Nursing (2011), East Tennessee State University, Johnson City, TN. |
| | MSN/FNP (1998), Radford University, Radford, Va. |
| | BSN (1995), Clinch Valley College, Wise, Va. |
| Professional Experience: | Instructor in Nursing, The University of Virginia's College at Wise, fall 2005-present. |
| | Instructor, Health Occupations, Dickenson County Career Center, Clinchco, Va. June 2000 – May 2005. |
| | Family Nurse Practitioner, Family Practice, Clintwood, Va. Aug. 1998 – June 2000. |
| | Staff Nurse, Intensive Care Unit, St. Mary's Hospital, Norton, Va. 1992-1997. |
| Honors/Awards: | 2010 Dissertation Award, The University of Virginia School of Nursing's Rural Health Care Research Center, $1,000. |
| | 2010 Harrison Award for Outstanding Service, The University of Virginia's College at Wise $500.00. |
| | 1998 Sigma Theta Tau International Honor Society. |