

2012-01-01

# Ethnicity and Gender as Predictors of Physical Activity and Social Cognitive Determinants

Amber Luana Bridges-Arzaga

*University of Texas at El Paso*, [albridges@miners.utep.edu](mailto:albridges@miners.utep.edu)

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ETHNICITY AND GENDER AS PREDICTORS OF PHYSICAL ACTIVITY  
AND SOCIAL COGNITIVE DETERMINANTS

AMBER BRIDGES-ARZAGA

Master of Public Health Program

APPROVED:

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Joe Tomaka, Ph.D., Chair

---

Sharon Davis, Ph.D.,

---

Barbara Schoen, Ph.D.

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Benjamin C. Flores, Ph.D.  
Dean of the Graduate School

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Amber Bridges-Arzaga

2012

ETHNICITY AND GENDER AS PREDICTORS OF PHYSICAL ACTIVITY  
AND SOCIAL COGNITIVE DETERMINANTS

by

AMBER BRIDGES-ARZAGA

THESIS

Presented to the Faculty of the Graduate School of

The University of Texas at El Paso

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF PUBLIC HEALTH

College of Health Sciences

THE UNIVERSITY OF TEXAS AT EL PASO

DECEMBER 2012

## **ACKNOWLEDGMENTS**

I would like to offer my sincerest thanks to all of the people who have provided support and guidance throughout this process. First and foremost, my advisor and mentor Dr. Tomaka, who has been such a vital part of my academic success. Next, I would like to express my gratitude to Dr. Morales-Monks whose encouragement and advice has been invaluable during this challenging time. I would also like to acknowledge my committee members Dr. Davis and Dr. Schoen for providing essential feedback and support as I worked to complete my thesis. Finally, I would like to thank my family and friends, especially my husband who has continuously encouraged me to achieve this goal.

## **ABSTRACT**

The purpose of this study was to examine ethnicity and gender as predictors of physical activity (PA) and the Social Cognitive Theory (SCT) constructs related to physical activity among college students. Specifically, the study examined differences in PA between Hispanic college students and their non-Hispanic White counterparts. The study also examined differences between Hispanic and non-Hispanic White participants in SCT constructs regarding PA, such as social support, self-efficacy, outcome expectancies, and self-regulation. Additionally, the study assessed differences between male and female college students in relation to PA and SCT constructs. Finally, the study explored mediational effects of SCT constructs on the relationship between ethnicity, gender, and PA behaviors among participants. Study hypotheses were:

1. Hispanic college students would engage in lower levels of moderate and vigorous physical activity than their non-Hispanics White counterparts.
2. Female college students would engage in lower levels of moderate and vigorous physical activity than male college students.
3. Social Cognitive constructs for physical activity would mediate the relationship between ethnicity, gender, and PA.

Secondary data was used for the purposes of this study. Participants, 313 University of Texas at El Paso college students, were asked to complete a health assessment questionnaire, which included demographic measures, an assessment of moderate and

vigorous PA levels, and measures of the SCT constructs in relation to PA. The International Physical Activity Q

uestionnaire (IPAQ) provided self-reported measures of the student's moderate and vigorous PA levels. SCT constructs analyzed in the study included self-efficacy, social support from friends and family, outcome expectancies for PA, and self-regulation in the forms of ability to set goals and make plans.

Data analyses consisted of a series of 2 X 2, Ethnicity by Gender, between subject ANOVAs. Dependent variables included moderate and vigorous levels of physical activity, and independent variables included ethnicity and gender. The study also included a series of mediational analyses examining the role of Social Cognitive Theory constructs on the relationship between ethnicity, gender, and PA.

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## **CHAPTER 1: INTRODUCTION**

Physical activity (PA) is shown to be a major determinant of overall physical and mental health. The health benefits associated with PA include, but are not limited to, more efficient blood circulation throughout the body, improved blood cholesterol levels, as well as the prevention and management of high blood pressure (American Heart Association [AHA], 2012). Additionally, regular PA helps prevent bone loss and increases muscle strength. It is also one of the best ways to avoid or delay onset of chronic diseases, such as heart disease, diabetes, and obesity (Centers for Disease Control and Prevention [CDC], 2011). Moreover, PA is shown to be beneficial in the management of stress, anxiety, and depression (AHA, 2012).

In scientific literature, PA is described as a function of its intensity, duration, and frequency (Haskell, Lee, & Pate, 2007). The American College of Sports Medicine (ACSM) and the AHA recommend that each individual engage in at least thirty minutes of moderate physical activity at least five days a week, or twenty minutes of vigorous physical activity at least three days a week (Haskell et al., 2007; ACSM, 2012; AHA, 2012). Moderate physical activity is defined as any activity that takes moderate physical effort and makes a person breathe somewhat harder than normal (e.g. walking, cleaning; Booth, 2000). Vigorous physical activity is defined as any activity that takes hard physical effort and makes a person breathe much harder than normal (e.g. jogging, swimming; Booth, 2000).

The benefits of PA are well documented, yet the majority of adults in the U.S. do not adhere to PA recommendations (CDC, 2001). In fact, approximately 25% of Americans reported that they engage in no physical activity at all, while approximately

25% report meeting the recommended levels of PA (CDC, 2001). Population subgroups, specifically women and ethnic minorities, are less likely to meet PA recommendations. According to the Behavioral Risk Factor Surveillance System (BRFSS) findings, women in every age group report lower levels of PA than their male counterparts (CDC, 2007). Similarly, Hispanics report engaging in less regular PA than non-Hispanic White (NHW) counterparts (CDC, 2007). Although BRFSS data suggests recent increases in regular PA levels among women and Hispanics, disparities remain evident (Haskell et al., 2007). Addressing PA disparities among these subgroups require greater understanding of the underlying mechanisms that influence health behavior choices.

Employing a theoretical framework can provide a systematic approach to evaluating variable relationships. Health behavior theories are used to explain and predict behavior choices. Among established health theories, the Social Cognitive Theory (SCT) is found to be effective in explaining many health behaviors including PA behaviors (Eyler, Wilcox, & Matson-Koffman, 2002). The SCT framework has been used to explain PA behaviors in the general population as well as population subgroups including women and Hispanics (Marquez & McAuley, 2006). Based on past literature, SCT constructs were applied to enhance understanding of PA behaviors among study participants.

Accordingly, the study examined associations between ethnicity, gender, moderate and vigorous levels of PA, and SCT constructs. Specifically, the study examined Hispanic vs. NHW and female vs. male college students. Particular SCT constructs, including social support, self-efficacy, outcome expectancies, and self-

regulation were examined in relation to PA. It was anticipated that the analyses would reveal ethnic and gender differences in levels of moderate and vigorous PA, as well as in SCT constructs. Study findings provided an important foundation for future PA interventions among similar populations.

## **CHAPTER 2: BACKGROUND**

### **Physical Activity**

Engaging in regular sessions of PA, even low level PA, can provide numerous benefits, including preventing or delaying the development of chronic diseases (CDC, 2011; Dergance, Calmbach, & Dhuand 2003). For example, Carlsson and colleagues (2006) found that women reporting low levels of PA had a decreased risk of mortality when compared to their sedentary peers. Advances in technology and the increased monetary incentive of sedentary work versus active work, often discourages participation in regular PA (Haskell et al., 2007). Today, the majority of adults in the U.S. do not achieve the minimum amount of recommended PA (CDC, 2001).

Regularly engaging in PA can help contribute to a healthy weight status and reduced occurrence of obesity (CDC, 2011). Adult obesity rates have increased from 13.4% in 1960 to 35.1% in 2005 (National Center for Health Statistics [NCHS], 2008). With childhood obesity being a predictor of adult obesity, the National Health and Nutrition Examination Survey (NHANES) findings suggest that 12% of children ages 2 to 5 years old, 17% of children ages 6 to 11, and 18% of children ages 12 to 17 are obese (Ogden, Carroll, & Flegal, 2008). Obesity contributes to the occurrence of chronic diseases, including the two leading causes of death, heart disease and cancer, as well as type 2 diabetes (CDC, 2011).

Research exploring PA over the lifespan suggests that PA rates decline from childhood into adulthood. Gordon-Larsen, Nelson, and Popkin (2004) found substantial decreases in PA among active adolescents into early adulthood. These findings are consistent among college student populations with studies finding low participation in PA, ranging from 40% to 55%, thus suggesting that approximately half of the overall

college student population is sufficiently physically active (Petosa, Suminski, & Hartz, 2003). Those meeting the recommended amount of PA is highest among 18-24 years olds (60%) and steadily declines to a low of 39% among adults 65 years and older (Haskell et al., 2007).

In an effort to increase health and wellness among the U.S. population, the federal government has created Healthy People 2020, the Health Goals and Objectives for the Nation. For over 30 years, Healthy People have created benchmarks and evaluated progress in an effort to:

- Encourage collaborations across communities and sectors
- Empower individuals toward making informed health decisions
- Measure the impact of prevention activities (Healthy People 2020, 2012)

PA is one of the 42 health-related topics that are addressed in the initiative. The overarching goal for PA is to “improve health, fitness, and quality of life through daily physical activity” (Healthy People 2020, 2012). A total of 15 of objectives were declared in order to reach this goal. Objectives focus on increasing both adult and children’s PA levels (Healthy People 2020, 2012).

### **Ethnic Disparities in Participation in Physical Activity**

Research suggests that Hispanics are historically less active than any other ethnic group in the United States. August and Sorkin (2010) reported that ethnic minorities engaged in less PA than their NHW counterparts, the greatest differences being noted during middle adulthood (i.e., ages 45-64). Additionally, the study found that the greatest PA disparities existed among minorities with limited English proficiency. Crespo, Keteyian, Heath, & Sempos, (1996) reported that 33% of Mexican American men and 46% of Mexican American women did not participate in any leisure-

time physical activity, which is defined as activity that is not associated with regular job duties, household, or transportation. Leisure-time physical inactivity trends from 1988-1994 for NHW, African Americans, and Hispanics were 18%, 35%, and 40%, respectively (Crespo, Smit, Andersen, et al., 2000).

Interestingly, Dergance and colleagues (2003) found that Mexican Americans reported significantly stronger belief in the benefits of PA, such as increases in strength, shape, attractiveness, and heart and lung function, as well as a decreased risk for disease than NHW. Despite these perceived benefits, Mexican Americans reported higher rates of a sedentary lifestyle. This is of particular concern, as regular PA may help to prevent or delay the onset of chronic diseases, such as type 2 diabetes, which affect minorities disproportionately (Stoddard, Guozhong, & Vijayaraghavan, 2010). This PA health disparity may have a significant relevance in El Paso, Texas, the site of the study, in which 81% of the residents are of Hispanic (U.S. Census Bureau, 2010).

Other factors are found to influence participation in PA. One of notable importance to the study population is socioeconomic status (SES), which has been identified as a factor affecting leisure-time physical activity, with those who are disadvantaged being at greater risk of inactivity (Yen & Kaplan, 1998). Additionally, research has found that living in a socioeconomically disadvantaged neighborhood, despite one's own SES, can increase the risk of inactivity (Gidlow, Cochrane, & Smith, 2008). Factors contributing to this disparity may include environmental differences, such as proximity to recreation areas, cost of PA participation, lack of recreational facilities, and concerns for safety (Humbert et al., 2006).



Consistently, the CDC (2009) reports that Hispanics living below the poverty level report higher levels of physical inactivity (61%) than their similarly disadvantaged NHW counterparts (55%). Conversely, NHWs living below the poverty level reported higher rates of regular physical activity (23%) than Hispanics (15%). Given El Paso's high level of poverty, 25%, versus the state rate of 15%, these findings have serious implications for the border city (U.S Census Bureau, 2010).

### **Gender and Physical Activity**

Gender differences in PA have been thoroughly documented in the literature and are detectable across the lifespan. A study of recess activities among elementary school students, grades 3 to 6, found that female students engaged in more sedentary activities than their male peers (Ridgers, Saint-Maurice, Welk, Siahpush, & Huberty, 2010). Additionally, significant differences also existed by gender for moderate and vigorous PA levels during recess. Overall, moderate and vigorous PA rates for male and female students during recess were 49% and 35%, respectively.

A study of physical activity levels from adolescence to early adulthood revealed similar findings. The National Longitudinal Survey of Adolescent Health (Add Health) reported significant differences in the proportion of males (52%) and females (70%) who failed to meet the recommended five days of moderate to vigorous physical activity in adolescence (Gordon-Larson, Nelson & Popkin, 2004). Hispanic (78%) and Black (79%) females were less likely to engage in PA, however, upon reaching early adulthood, NHW females reported a dramatic decrease in PA levels as well (27% what is this, the percent of decrease or the what it dropped to). This trend, of decreasing PA among women, is continued into mid-to-late adulthood, with adult women in every age group reporting lower levels of PA in comparison to their male counterparts (CDC,

2007). Moreover, Barnes and Schoenborn (2003) reported that among U.S. adults, men (21%) were more likely to engage in high levels of overall PA than women (17%).

Lower levels of PA among women are not limited to the United States. An international PA study found that in 17 out of the 20 examined countries, males reported engaging in higher levels of PA than their female counterparts with the greatest gender disparities occurring in young adulthood (Bauman et al., 2009).

Although Latinas as a group have been reported to be largely sedentary, Marquez and McAuley (2006) have suggested that this label may be inaccurate. This is due to the nature of measuring PA. Specifically, many studies only measure leisure-time activities and do not account for occupational and domestic PA. Thus, PA levels among Hispanic women may be underestimated. This may be particularly true for low-aculturated Hispanic women, with research suggesting that this specific group of women participate in higher levels of non-leisure time PA, such as occupational and domestic activities (i.e. house cleaning, child care; Marquez and McAuley, 2006).

### **Social Cognitive Theory (SCT)**

The SCT is based on a dynamic relationship between environment, personal factors, and behavior (Allison, Dwyer, & Makin, 1999; Bandura, 1978). SCT posits that behavior is a product of an individual's learning history, present perception of the environment, intellectual, and physical capacities (McAlister, Perry, & Parcel, 2008). The theory further suggests that a change in one factor can potentially create change in all factors—through a process of reciprocal determinism. Specific influences on behavior include self-efficacy, observational learning, expectations, expectancies, emotional arousal, behavioral capacity, reinforcement, and locus of control (Hayden,

2009). Identifying SCT constructs allow for many possibilities in behavioral research and practice in health education.

### **History and Main Concepts**

Albert Bandura developed SCT based on his earlier work on the Social Learning Theory, which was popular in the late 1970's. At the time, behavioral/learning processes were examined from an environmental or personal determinism perspective. The environmental perspective emphasized that human behavior was controlled by situational influences, whereas the personal determinism perspective emphasized that behavior arose from dispositional sources, in the form of instinct, drives, traits, and other internal motivational forces (Bandura, 1978). Moreover, each view of behavioral processes was thought to be unidirectional in the sense that behavior is influenced by either the environment or personal determinism. The theory did not take into account interactions of both factors nor the reciprocal effect of the environment and the person (Bandura, 1978).

In contrast to these perspectives, the SCT framework includes constructs that arise from personal, environmental, and behavioral factors. Personal constructs include self-efficacy, outcome expectancies, and self-regulation, while environmental factors include constructs as diverse as cues for reward and punishment to social support from family and friends (Bandura, 1997). The process of reciprocal determinism was added to address the continuous multidirectional interaction between behavioral, personal, and environmental influences (Bandura, 1978).

### **Self-efficacy**

Self-efficacy represents a central component of SCT and functions as an important personal determinant of health behavior in general and specifically to PA. In

general, self-efficacy is one's confidence in performing a particular behavior (Glanz, Lewis, & Rimer, 2002). It has also been defined as one's beliefs about his or her ability to engage in a certain behavior that will lead to expected outcomes (Ryan & Dzewaltowski, 2002). Overall, individuals with high self-efficacy for PA are more likely to engage in and maintain this behavior (Marquez & McAuley, 2006).

The self-efficacy construct has been widely used in PA research. A review of existing literature concluded that self-efficacy was the most consistent psychological correlate of PA (Trost, Owen, Neville, Bauman, & Brown, 2002). Sallis and Owen (1999) found that of individual level variables, self-efficacy and SES demonstrated the strongest and most consistent relationship with PA. Research among minority populations has also found self-efficacy to be a strong predictor of PA, as Ryan (2005) reported that perceived self-efficacy for cardiovascular exercise activities significantly predicted PA levels among young Hispanics. Similarly, Magoc and Tomaka (2010) found that self-efficacy was the most significant predictor of PA for both genders, among a predominantly Hispanic college student sample.

### **Social Support**

In the context of SCT, social support represents a form of verbal or behavioral encouragement of a given behavior, such as PA (Bandura, 2004). There are four main types of social support: instrumental, informational, emotional, and appraisal (Jack et al., 2010). Instrumental social support is the most direct form, including money, time, and other interventions on a person's behalf. For example, setting aside time to teach a friend how to swim would be an instance of instrumental social support. Informational social support includes the provision of advice, suggestions, or directives that assist the person in personal or situational demands. For example, one could provide

informational support by sharing exercise tips with a coworker who would like to become more active. Emotional social support represents the affective or emotional support provided by the member of the social network, including empathy, concern, caring, and/or love. For example, one could provide emotional social support by attending a weight management group with a family member that is struggling with obesity. Finally, appraisal social support is reinforcement in the form of affirmations, feedback, or social comparisons, such as a trainer expressing pride in the client for the achievement of their PA goals.

Social support has been identified as an important variable in PA behaviors. Perceived support, the level of encouragement one believes others provide, for PA received from family and friends, is positively associated with PA behaviors (Courneya & McAuley, 1995). Eyler et al. (1999) found that women from ethnic minorities with low levels of perceived social support were more likely to be physically inactive than those with high levels of perceived social support. Specific to the current population, Hovell et al. (1991) suggested that greater levels of social support might lead to more vigorous PA participation among Latinos by a means of increased motivation.

### **Outcome Expectancies**

According to SCT, people tend to adopt actions that are most likely to produce positive outcomes and tend to avoid actions that will likely produce negative outcomes (Bandura, 2004). This idea is reflected in the SCT concept called Outcome Expectancies. For example, an athlete may increase training time if he expects that increased training time will result in an improvement in performance and such improvement is valued. In general, the forms of outcome expectancies include physical outcomes, social outcomes, and self-evaluative outcomes (Bandura, 1997). Physical

outcomes are reflective of the expectation of pleasurable effects resulting from the performance of the behavior, such as the release of endorphins triggered by PA commonly known as “runner’s high”. The social outcomes refer to perceived approval or disapproval of the behavior from members of the social network. For instance, if a person learns to play softball, their friends may invite him to join their team. Finally, self-evaluative outcomes are positive and negative personal reactions to one’s health behavior. For example, one may expect to feel better about themselves if they can regularly engage in PA (Bandura, 2004).

Although previous research has reported mixed results for associations between expectancies and PA behaviors (Williams, Anderson, & Winett, 2005), outcome expectancies are an important construct in the SCT theory. The personal significance of exercise outcomes for a given individual is likely to play an important role in determining exercise behavior (Dzewaltowski, Noble & Shaw, 1990). Among Latinos, Marquez and McAuley (2006) found that those who participated in high levels of PA placed greater significance on outcomes related to PA than those engaging in low levels of PA.

### **Self-Regulation**

Self-regulation refers to motivational and self-regulatory skills (Bandura, 2004). Self-regulation allows a person to set goals, track progress, and evaluate capabilities to perform behaviors in given situations. For example, this would include setting a goal weight and monitoring pounds lost as PA level increases. Bandura (2004) concluded that people could not influence their motivation and actions without an adequate attention to their performance. For instance, if a person wants to increase physical endurance, but does not set specific goals and monitor their progress, they will have

less inspiration to continue the behavior. Thus, being able to set goals and track progress can help people increase their motivation toward certain behaviors.

According to Bandura (1997), self-regulation is the key factor in social-cognitive approaches to changing behavior. A study of PA and SCT constructs conducted by Anderson, Wojcik, Winett, and Williams (2006), found self-regulation to have a strong effect on PA. In fact, self-regulation was the most influential social-cognitive variable on PA with participants reporting higher levels of perceived social support for PA demonstrating higher levels of self-regulation.

### **Social Cognitive Theory and Physical Activity**

Several studies have investigated SCT constructs in relation to PA. Specifically, Marquez and McAuley (2006) investigated the relationship between leisure-time physical activity, exercise self-efficacy, exercise barriers self-efficacy, exercise social support, and perceived importance of physical activity among Latinos from various towns in central Illinois. Study findings suggested that Latinos high in leisure-time physical activity had significantly greater exercise and exercise barriers self-efficacy, received more social support from friends to exercise, and placed greater importance on physical activity outcomes than Latinos low in leisure-time physical activity. No significant differences were revealed for social support from family, nor between men and women on the psychosocial variables, including exercise self-efficacy, barriers self-efficacy, perceived importance, and social support from friends (Marquez & McAuley, 2006).

Similarly, Ryan (2005) examined physical activity levels in young adult Hispanics and NHWs utilizing SCT determinants. Separate regression analyses were conducted for each ethnicity that included SCT measures and gender as predictors of PA. Ryan

found that task efficacy, response efficacy, mental-health expectancies, and self-evaluative-expectancies predicted activity level among Hispanics, while NHWs' activity level was found to be predicted by scheduling efficacy and self-evaluative expectancies. Ryan (2005) suggested that, in comparison to NHWs, Hispanics may not be as effective at maintaining lifelong PA habits since research has shown scheduling efficacy to be an important factor in maintain exercise activity over time.

Another study examined social-cognitive theory constructs as determinants of physical activity. Specifically, this study examined the influence of social support, self-efficacy, outcome expectancies, and self-regulation on PA among participants in a church-based health promotion program. Anderson and colleagues (2006) examined the relationship between PA and SCT by utilizing data collected from 999 adults, including a deliberate effort to include African Americans participants, from 14 churches in southwest Virginia. Study findings identified age, race, social support, self-efficacy, and self-regulation as contributing factors to participant PA levels with self-regulation having the strongest effect on PA. Outcome expectancies were not found to be a contributor to PA.

Additional research includes the use of SCT as the basis for interventions designed to increase PA. Specifically, Magoc, Tomaka, and Bridges-Arzaga (2011) implemented a Web-based PA intervention focused on increasing PA among college students, utilizing SCT as a theoretical framework. The intervention was successful in increasing PA levels among participants, however SCT variables were not affected by the intervention. Findings suggested that Web-based interventions may provide a useful means of increasing PA levels among college populations, although the brief



intervention may not have provided enough time necessary to influence SCT constructs among participants.

### **Study Rationale**

As described above, research suggests that both ethnic and gender PA disparities exist and that understanding the determinants of these disparities in the context of the SCT may guide future interventions and increase health equity. Accordingly, the purpose of this study was to examine associations of ethnicity and gender with moderate and vigorous physical activity levels and SCT constructs related to PA. Specifically, this study examined differences in PA between Hispanic college students and their NHW counterparts. This study also examined differences between Hispanic and NHW participants in SCT constructs such as social support, self-efficacy, outcome expectancies, and self-regulation. Additionally, this study examined differences between male and female college students in relation to PA and SCT constructs. Finally, this study explored the mediational effects of SCT constructs on PA behaviors among participants. Study hypotheses included:

1. Hispanic college students would engage in lower levels of moderate and vigorous physical activity than non-Hispanics White college students.
2. Female college students would participate in lower levels of moderate and vigorous physical activity than male college students.
3. SCT constructs for PA would mediate the relationship between ethnicity, gender and PA.

## **CHAPTER 3: METHODS**

### **Overview**

The present study was a secondary analysis of data collected from over three hundred college students attending a predominantly Hispanic-serving university. Participants were surveyed during the 2008-2009 school year. Survey completion time was approximately 20 minutes, and included measures of demographic variables, PA, and SCT constructs. Approval from the University of Texas at El Paso Institutional Review Board (IRB) was obtained prior to data collection.

### **Setting**

The University of Texas at El Paso (UTEP) is located on the U.S. - Mexico border in the Southwest corner of Texas (bordering Juarez, Chihuahua, Mexico). UTEP serves approximately 20,000 students, of whom 77% are Hispanic. An additional 9% are international students, primarily from Mexico (UTEP, 2010). The student population consists of 54% women and 46% men. Sixty percent are full time students, and the majority of UTEP students (83%) are El Paso County residents (UTEP, 2010).

### **Participants**

Study participants were 313 students attending UTEP. All current students were eligible to participate in the study. Recruitment methods included street interviewing, classroom recruitment, email notification, and word of mouth. In order to create a more thorough sample for analysis, NHW participants were purposely oversampled in a second wave of data collection. Oversampled participants received a \$20 dollar gift card for participating in the study. Gift card incentives were made possible through a research award funded by the Hispanic Health Disparities Research Center.

### **Measures**

Participants were asked to complete a 20 minute questionnaire that focused on several different areas including demographics, PA, and specific SCT constructs including self-efficacy, self-regulation, social support, and outcome expectancies.

Demographic variables assessed were gender, age, ethnicity, student status, employment status, and income.

#### *International Physical Activity Questionnaire (IPAQ)*

The IPAQ is used to assess frequency of and type of physical activities engaged in including, moderate-intensity, and vigorous-intensity PA (Booth, 2000). The full version can be used to measure PA within four domains including leisure-time, domestic and gardening, work-related, and transportation-related activities. For the purpose of this study, the only measures included were for leisure-time PA. The seven item questionnaire collected data from open-ended questions inquiring on the number of days and minutes spent engaged in walking, moderate, and vigorous PA within the last seven days.

#### *The Self-Efficacy for Exercise Behavior Scale*

The Self-Efficacy for Exercise Behavior Scale assesses students' self-efficacy in regard to physical activity (Sallis et al., 1988). This twelve-item questionnaire measures the participant's confidence in their ability to motivate themselves to consistently engage in PA for at least a six-month period. Scores range from one to five, with one being "I know I cannot" and five being "I know I can". For example, participants are asked to rate how confident they are in their ability to "stick to your exercise program after a long, tiring day at work". Petosa et al. (2003) showed good reliability for this scale in a

predominantly white college student sample (.97). Based on the current study findings, reliability for this scale was  $\alpha = .90$ .

*Self-Regulation Scale the Exercise Goal-Setting Scale (EGS) and The Exercise Planning and Scheduling Scale (EPS)*

Self-Regulation Scale the Exercise Goal-Setting Scale (EGS) and The Exercise Planning and Scheduling Scale (EPS) measure students' self-regulation in regard to physical activity (Rovniak et al., 2002). The scales consist of a total of 20 items that range in scores from one to five, with one being "does not describe" and five being "describes completely". Participants were asked to indicate the extent that the statement described them. For example, "I often set exercise goals" or "I plan my weekly exercise schedule". Rovniak et al. (2002) showed good reliabilities for these scales in a predominantly white college student sample (.89 and .87, respectively). In the present study, the reliabilities were found to be  $\alpha = .84$  and  $\alpha = .93$ , respectively.

*The Family and Friend Support for Exercise Habits Scales*

The Family and Friends for Exercise Habits Scales assesses social support received by the student from friends and family (Sallis et al., 1987). This thirteen-item scales measure social support one has received during the past three months on a one to five scale, with one being "none" and five being "very often". For example the participant is asked to rate how often "during the past three months, my friends offered to exercise with me". Petosa et al. (2003) showed good reliabilities for these scales in a predominantly white college student sample (.61 and .91, respectively). Reliability for the social support from family scale was  $\alpha = .89$ , while the social support from friends scale reliability was  $\alpha = .91$ .

### *Outcome Expectations and Expectancies Scale*

The Outcome Expectations and Expectancies Scale assesses outcome expectations and expectancies in regards to physical activity (Steinhardt & Dishman, 1989). This is a 19 item questionnaire with frequency scores ranging from one to five, with one being “never” and five being “very often” and importance scores ranging from one (low) to three (high). Participants are asked to complete the phrase “I exercise to” with each of the 19 items, such as “feel a positive psychological effect”. Petosa et al. (2003) showed a good reliability for this scale in a predominantly white college student sample (.74). The scale was divided into three sections based on the results of a factor analysis. Factors included body image, competition, and psychological outcome expectancies. See factor analysis description below. In the current study, reliability was reported as  $\alpha = .83$ ,  $.88$ , and  $.88$ , respectively for the three factors of the scale.

### **Procedure**

After receiving a verbal description of the study intent, students who were willing to participate were provided with the informed consent documentation. Once informed consent was received by the study investigator, the students were asked to complete the demographics section and 5 scales included in the questionnaire. A principal investigator or research assistant was available to answer questions from the participants. Students spent an average of 20 minutes to complete the questionnaire. Upon completion, those students who were part of the oversampled group, NHW college students, received a \$20 gift card for their participation.

## **CHAPTER 4: RESULTS**

### **Data Screening**

Prior to any data analysis, all data were screened and inspected for errors in data input and maintenance of distributional assumptions. Data were limited to cases relevant to the study and thereby, excluded participants who were neither Hispanic or non-Hispanic White (NHW). In total, 14 cases were eliminated from the analysis for this reason. The final data set consisted of 217 Hispanics and 82 NHWs. Descriptive statistics were conducted for study variables to determine if the distributions were skewed and to identify possible outliers. Data were found to be reasonably normally distributed and without outliers for all but two variables including vigorous minutes and moderate minutes, which were all positively skewed. These variables were logarithmically transformed, significantly reducing their skewness.

### **Data Reduction**

A factor analysis of outcome expectancies showed that the scale had three primary factors. The first factor consisted of items assessing self-image, attractiveness, weight loss, and shape, which were labeled “body image expectancies.” The second factor consisted of items assessing respect, performance on a team, ability to compete, time with friends, and time with family, this factor was labeled “competition expectancies”. The third factor consisted of factors focusing on coping, tension reduction, enjoyment, fun, accomplishment, psychological benefit, and improved health, which were labeled “psychological expectancies”.

Reliability analyses were conducted for each of the SCT construct scales and the three outcome expectancies subscales identified above. Outcome Expectations and

Expectancies Scale reliabilities was reported at  $\alpha = .83$  for body image,  $\alpha = .88$  for competition, and  $\alpha = .88$  for psychological. Analysis of the self-efficacy scale reported a reliability of  $\alpha = .90$ . Reliability for self-regulation- goals and plans scales were reported as  $\alpha = .84$  and  $.93$ , respectively. Finally, scale reliability for the social support from family reported a  $\alpha = .89$ , while the social support from friends scale reported an alpha of  $.91$ . Overall, analysis of study scales found good reliability.

### **Data Analysis Overview**

Data were analyzed using SPSS version 20 for both descriptive and inferential techniques. Descriptive statistics included means and standard deviations and/or percentages as appropriate to the level of measurement. Correlation coefficients were also analyzed in order to identify significant relationships between study variables and guide additional analyses.

Inferential statistics included the use of ANOVA techniques to examine differences by ethnicity (Hispanic vs. NHWs) and gender (Male vs Female). Specifically, a series of 2 X 2, Ethnicity by Gender, between subjects ANOVAS were conducted to examine differences between the groups. Dependent variables for these analyses included levels of moderate and vigorous PA as well as the SCT constructs. Finally, SPSS AMOS was used to examine the extent to which SCT constructs mediated the effects of ethnicity and gender on levels of moderate and vigorous PA.

### **Descriptive Statistics**

Descriptive statistics included an examination of demographic, dependent and independent study variables. Demographic variables included age, ethnicity, gender, yearly income, employment status, and hours worked per week. Independent variables

included gender and ethnicity, while the dependent variables included SCT constructs, vigorous days, vigorous minutes, moderate days, and moderate minutes. The results of these analyses are presented in Tables 1-3. Table 1 contains the means, standard deviations, or where appropriate, percentages for the demographic variables. Mean age for study participants was 24 years old. The majority (66%) of participants were women and 73% were Hispanic. A total of 61% of study participants reported being employed at the time of data collection. Most employed students reported working part time (45%), while 16% were employed full time. The mean income for study participants was \$14,035.

Table 1. Demographics of study participants

	Overall <i>M</i> ( <i>SD</i> )
Demographic	
Age	24.89 (6.5)
Ethnicity (Hispanic)	73%
Gender (Female)	66%
Yearly Income	14035 (.446)
Currently employed	
Full time	16%
Part time	45%
Hours worked per week	15.8 (16.77)

Note: n = 299

Table 2 presents the means and standard deviations for the dependent variables, days and minutes of vigorous and moderate physical activity, overall and by gender. Overall, study participants reported engaging in an average of 2.37 days of vigorous PA for a little over an hour per day of vigorous activity. Students were found to take part in



moderate PA slightly more often than vigorous PA, with an average of 2.61 days per week for an average of 66.32 minutes per day of moderate activity. As shown in Table 2, men were found to engage in both days of moderate and vigorous PA more often than females. Additionally, men reported more minutes of PA during those days of activity than did their female counterparts.

Table 2. Means (SDs) for Participation in Physical Activity per Week

	Overall <i>M</i> ( <i>SD</i> )	Men <i>M</i> ( <i>SD</i> )	Women <i>M</i> ( <i>SD</i> )
Days of vigorous physical activity	2.37 (1.92)	2.92 (1.74)	2.09 (1.96)
Minutes of vigorous physical activity	68.5 (62.4)	92.61 (62.32)	56.2 (58.9)
Days of moderate physical activity	2.61 (2.06)	3.03 (2.04)	2.4 (2.05)
Minutes of moderate physical activity	66.32 (72.4)	85.2 (84.67)	66.32 (72.4)

Note: n = 299

Table 3 displays a summary of descriptive statistics for SCT construct variables. Means and standard deviations are reported for study participants overall and by gender. With the exception of social support from family, men consistently reported higher levels of SCT constructs for physical activity.

Table 3. Means (SDs) for Social Cognitive Theory Constructs

	Overall <i>M</i> ( <i>SD</i> )	Men <i>M</i> ( <i>SD</i> )	Women <i>M</i> ( <i>SD</i> )
Social Cognitive Theory Constructs			
Self-efficacy	42.19 (9.65)	44.58 (9.05)	40.94 (9.74)
Self-regulation			

Plans	27.17 (8.37)	29.02 (8.02)	26.21 (8.37)
Goals	30.36 (9.82)	32.77 (9.18)	29.10 (9.93)
Social support			
Family	1.84 (.77)	1.70 (.74)	1.91 (.78)
Friends	2.03 (.87)	2.16 (.81)	1.96 (.89)
Outcome expectations			
Body image	51.46 (16.2)	52.24 (16.75)	51.05 (15.93)
Competition	32.65 (22.16)	38.21 (23.7)	29.71 (20.77)
Psychological	65.02 (24.22)	69.12 (25.70)	62.86 (23.18)

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Note: n = 299

### **Inferential Statistics**

Table 4 contains the intercorrelations among the main study variables. As shown, vigorous days and minutes of PA were found to consistently correlate with the SCT construct variables, with the exception being social support from family. Self-efficacy for PA was also positively correlated with PA variables and all Social Cognitive variables, excluding social support from family. Similarly, self-efficacy was positively correlated with vigorous days and minutes of PA, however, it was not correlated with social support from family. Interestingly, these same SCT construct correlations, while still significant, were weaker for days of moderate PA. The overall pattern suggests that with the exception of social support from family, the SCT variables were most strongly related to vigorous PA.

Table 4. Intercorrelations among Main Study Variables

Main Study Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Vigorous Days		.740**	.386**	.223**	.549**	.579**	.677**	.086	.356**	.399**	.320**	.418**
2. Vigorous Minutes			.305**	.345**	.407**	.495**	.539**	.06	.335**	.380**	.314**	.379**
3. Moderate Days				.631**	.328**	.257**	.316**	.08	.117*	.206**	.145*	.164**
4. Moderate Minutes					.202**	.226**	.250**	.107	.166**	.209**	.164**	.132*
5. Self-Efficacy						.644**	.651**	.072	.365**	.445**	.340**	.497**
6. Self-Regulation Goals							.712**	.174**	.397**	.477**	.447**	.592**
7. Self-Regulation Plans								.186**	.415**	.409**	.392**	.532**
8. Social Support Family									.127*	.091	.151**	.214**
9. Social Support Friends										.290**	.481**	.318**
10. Body Image Expectancies											.292**	.511**
11. Competition Expectancies												.507**
12. Psychological Expectancies												

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

A series of 2x2, ethnicity by gender analysis of variance were conducted in order to examine differences in PA behaviors. Data analysis revealed significant differences in the dependent variables by ethnicity and gender. Results of the analyses are discussed below.

For PA, results showed main effects for ethnicity on two dependent variables. NHWs reported more days of vigorous physical activity (M's 2.89 vs. 2.17) than Hispanics. NHWs also reported more days of moderate physical activity (M's 3.35 vs. 2.33) than Hispanics. Minutes of physical activity, vigorous or moderate, did not differ significantly by ethnicity.

Results for PA also indicated consistent main effects for gender across all indicators of PA except moderate minutes. As shown in Table 2, these analyses demonstrated that men vigorously exercised on more days (M's 2.92 vs. 2.09) and for more minutes (M's 1.71 vs. 1.27) than women. Men also exercised moderately on more days (M's 3.03 vs. 2.40) than women.

For PA, the ethnicity by gender interaction approached significance only for minutes of vigorous activity. Simple effects tests were conducted as a precaution in order to avoid statistical Type 2 errors. The test showed, that whereas NHW men and women did not differ in minutes of vigorous activity,  $t(80) = .78$ , ns, Hispanic men and women did differ significantly,  $t(212) = 4.65$ ,  $p < .001$ . Examination of the means showed that Hispanic women had the lowest number of vigorous minutes ( $M = 1.22$ ) whereas Hispanic men had the highest

(M = 1.76) with the NHW men and women falling in between these extremes (M = 1.59 and 1.43, respectively).

Overall, these analyses show that NHWs were more active than Hispanics (2/4 PA variables), men were more active than women (4/4 PA variables), and modest evidence that Hispanic women are the least active group (1/4 PA variables).

Analyses of the SCT variables indicated five significant or near significant effects for gender. As shown in Table 3, men had greater self-efficacy for physical activity than women (M's = 44.59 vs. 40.94, respectively), men had higher self-regulation in terms of the ability to make plans (M's 29.02 vs. 26.21, respectively), and to set goals (M's 32.77 vs. 29.10, respectively), a near-significant tendency for men to report greater social support from friends than did women (M's 2.16 vs. 1.96, respectively) and men also had greater competition outcome expectancies than women (M's 38.21 vs 29.71, for men and women respectively).

Results also indicated five significant or near significant effects for ethnicity. Specifically, Hispanics had greater outcome expectancies for psychological effects (73.14 vs. 66.47) and for body image (52.22 vs. 49.50). However, NHW had greater self-efficacy for PA than Hispanics (M's 44.46 vs. 41.34) as well as greater self-regulation for plans (M's 29.06 vs. 26.46) and goals (32.51 vs. 29.55).

Significant interactions emerged for all three outcome expectancies categories as well as social support from family, although the latter only approached significance. Simple effects tests showed that Hispanic men had significantly higher psychological outcome expectancies ( $M = 81.57$ ) than any other group including Hispanic women ( $M = 69.19$ ), NHW men ( $M = 64.32$ ) and NHW women ( $M = 68.00$ ),  $t(211) = 3.27, p = .001$ . Simple effects tests also showed that Hispanic men also had the highest outcome expectancies for competition ( $39.57$ ), whereas Hispanic women had the lowest competition expectancies ( $M = 27.82$ ) with NHW men and women falling in between these extremes ( $M$ 's =  $35.50$  and  $35.41$ , respectively),  $t(211) = 3.96, p < .001$ .

Simple effects tests for body image expectancies showed that among Hispanics, men had greater outcome expectancies than did women ( $M$ 's  $55.52$  vs.  $50.67$ , respectively),  $t(211) = 2.08, p = .039$ . This pattern was reversed among NHWs where women had greater body image outcome expectancies than men ( $M$ 's  $52.20$  vs.  $45.67$ , respectively). Overall NHW men appeared to have the lowest outcome expectancies for PA to improve body image.

Finally, simple effects tests of the interaction for family support showed that Hispanic women reported greater social support for PA from family than men ( $M$ 's  $1.97$  vs.  $1.65$ , respectively),  $t(214) = -2.80, p = .006$ . NHW men and women did not differ ( $M$ 's  $1.80$  and  $1.75$ ). Overall Hispanic men reported the lowest values for family social support for physical activity.

Table 5 shows the results of the 2 X 2, Ethnicity X Gender ANOVAs for the physical activity and the SCT variables.

Table 5. Main and Interactive Effects of Ethnicity and Gender on PA and SCT Constructs 2 X 2 ANOVAs effects table

	Ethnicity	Gender	Gender/Ethnicity
PA			
Vigorous Days	5.099*	6.765**	1.563
Vigorous Minutes	0.021	10.246**	3.36+
Moderate Days	12.33**	3.45*	0.14
Moderate Minutes	2.57	3.17+	1.88
Self-Efficacy	3.60*	4.64*	1.62
Self Regulation			
Plans	3.53+	3.79*	1.08
Goals	2.88+	4.34*	1.96
Social Support			
Family	0.08	1.67	3.14+
Friends	0.17	2.75+	.00
Expectancies			
Psychological	6.82**	1.52	5.17*
Competition	0.37	4.13*	4.01*
Body Image	3.74*	0.15	7.02**

\*\* Significant at .01, \* Significant at .05, + Near significant

## Mediational Analyses

SPSS AMOS was used to examine the extent to which SCT constructs mediated the effects of ethnicity and gender on levels of moderate and vigorous PA. Figure 1. depicts the relationship between ethnicity, days of vigorous activity and SCT constructs as mediators of this relationship. As shown, the model demonstrates the negative relationship between ethnicity and outcome expectancies, as Hispanics report higher levels of the construct. The model also suggests that self-efficacy, body image expectancies, and psychological

expectancies all partially mediate the positive relationship between ethnicity and days of vigorous PA.

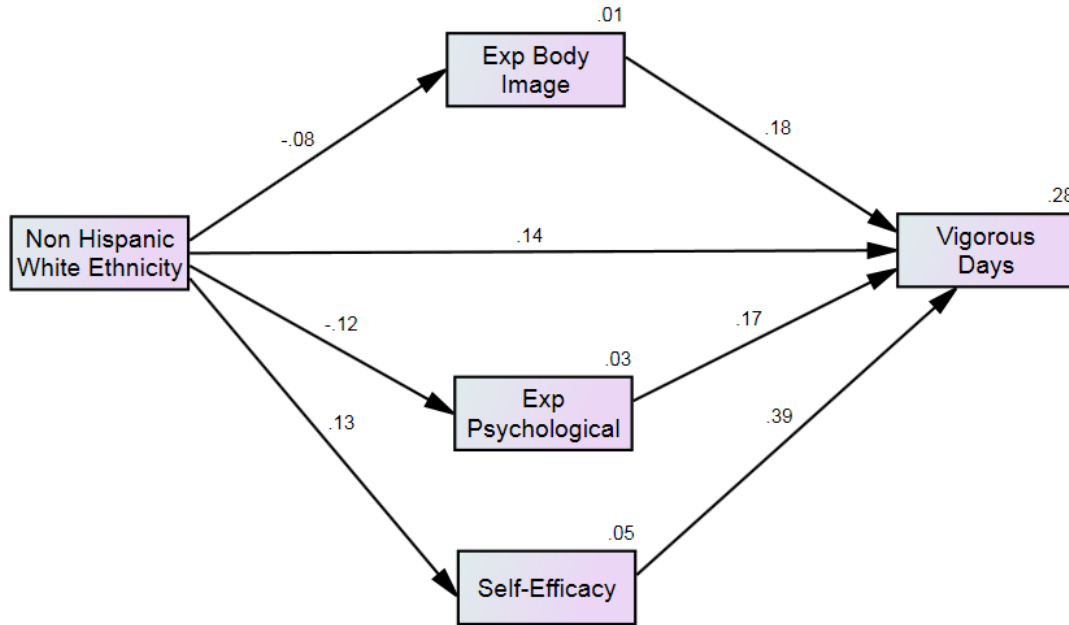


Figure 1. Social Cognitive constructs as mediators of ethnicity and days of vigorous physical activity

Figure 2 depicts the relationship between ethnicity, days of moderate PA, and SCT constructs as mediators of this relationship. Similar to days of vigorous PA, self-efficacy was found to partially mediate the relationship between ethnicity and days of moderate PA. In contrast, body image and psychological expectancies did not mediate this relationship.



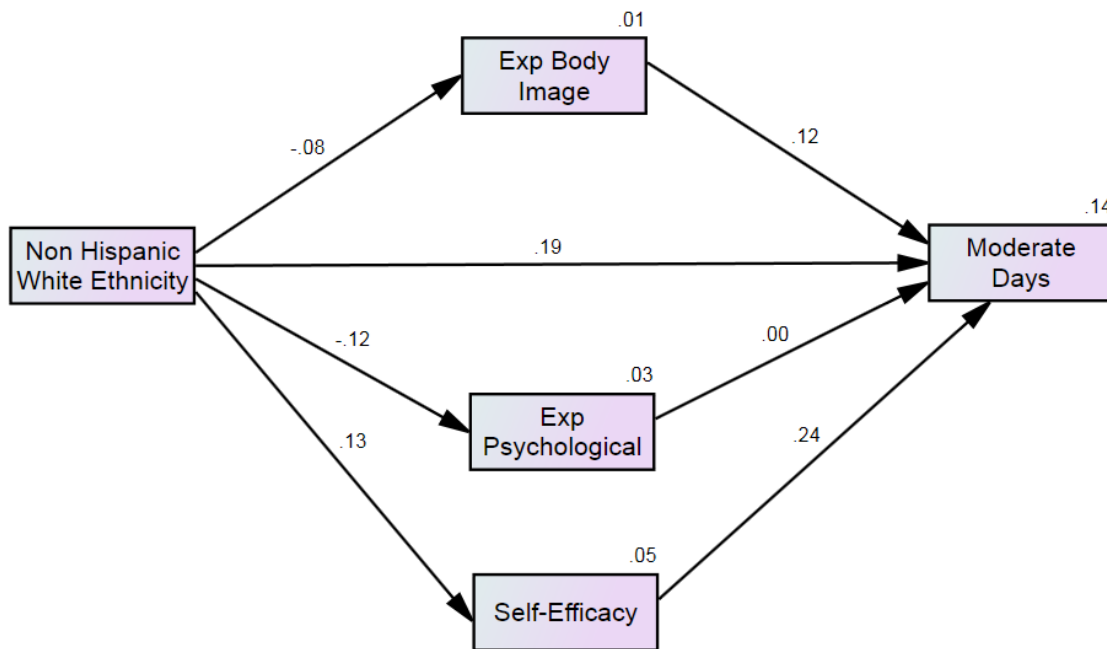


Figure 2. Social Cognitive constructs as mediators of ethnicity and days of moderate physical activity

Figures 3-5 depict the relationships between gender, PA activity variables, and SCT constructs as mediators of these relationships. As shown in these figures, gender had a negative relationship with days of vigorous PA and SCT constructs, as female college students report less PA and lower values on SCT constructs related to PA. The model shown in Figure 3 demonstrates that self-efficacy and perceived abilities to set goals and to make plans (i.e., SR plans and goals) are partial mediators of the relationship between gender and days of vigorous PA. Outcome expectancies for competition were not found to be significant. As shown in Figure 4 both forms of self-regulation continued to mediate the relationship, this time with vigorous minutes as the outcome, however self-efficacy was not found to be significant. These models suggest that

although self-efficacy is an important factor, the ability to plan and set goals for PA is more predictive of the participation in vigorous PA.

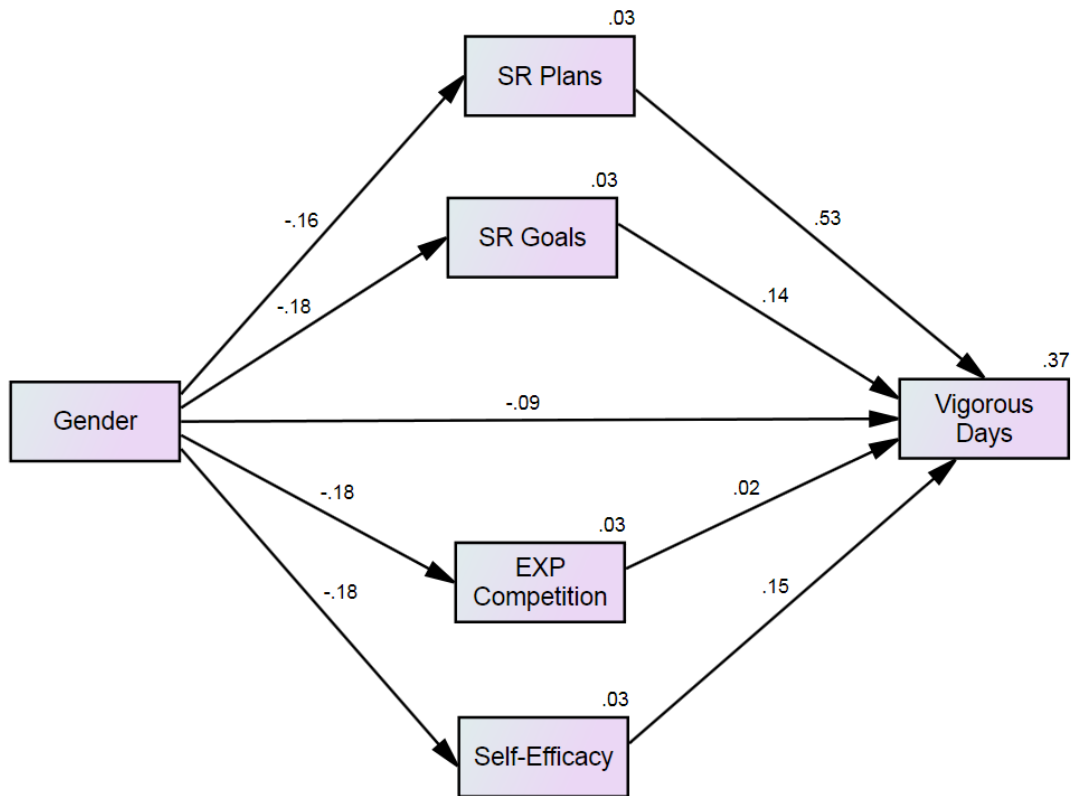


Figure 3. Social Cognitive constructs as mediators of gender and days of vigorous physical activity

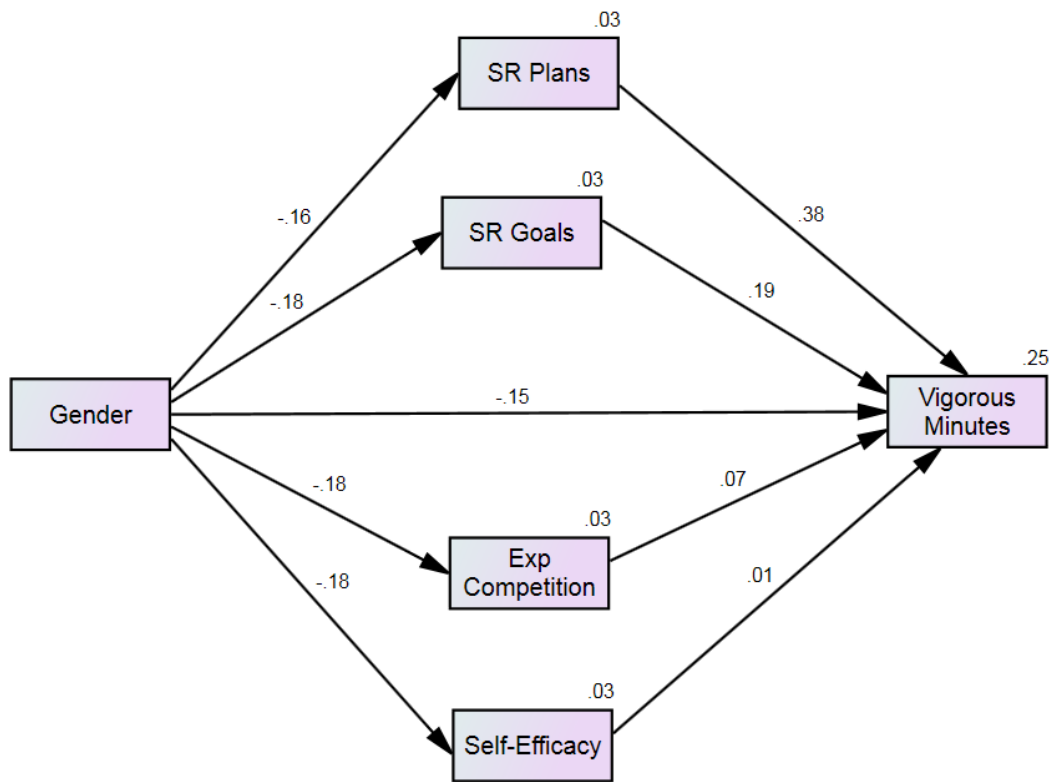


Figure 4. Social Cognitive constructs as mediators of gender and minutes of vigorous physical activity

Figure 5 depicts the relationship between gender, days of moderate PA, and SCT constructs as mediators of this relationship. The model indicates that for days of moderate PA, self-efficacy and self-regulation- plans partially mediated the relationship with gender. However, self-regulation- goals and outcome expectancies for competition were not found to be significant mediators of the relationship. Unlike vigorous PA, self-efficacy was found to be the strongest moderator of days of moderate PA.

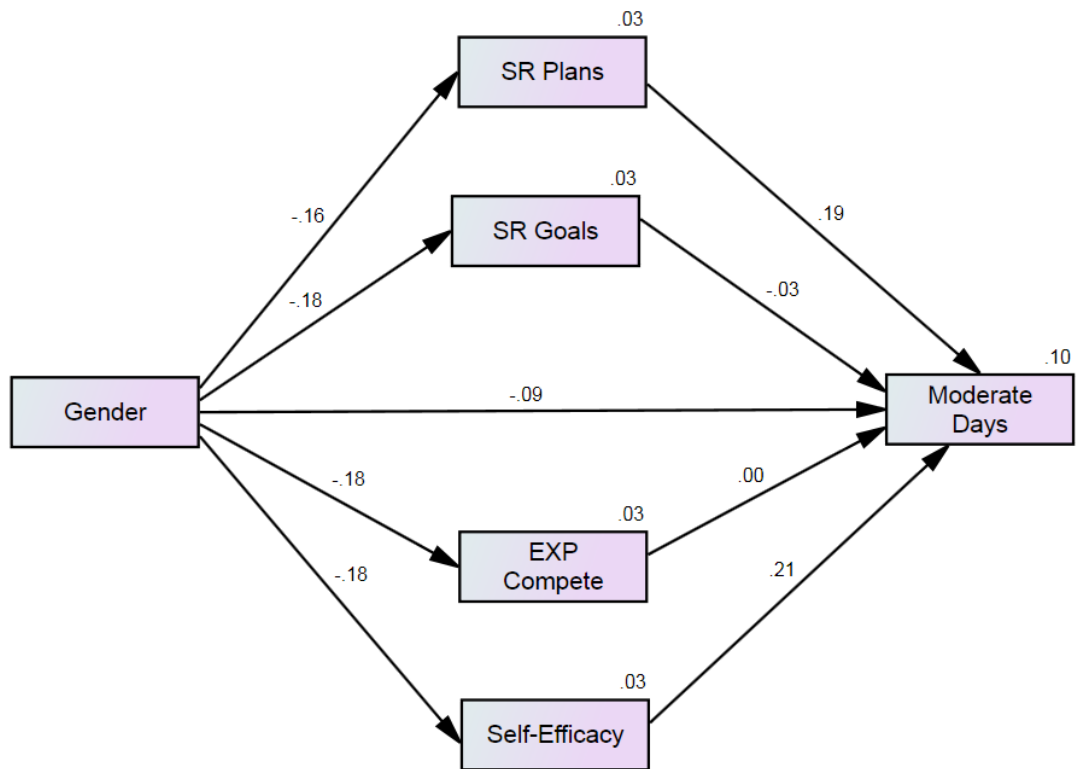


Figure 5. Social Cognitive constructs as mediators of gender and days of moderate physical activity

## **CHAPTER 5: DISCUSSION & CONCLUSION**

The purpose of this study was to examine associations between ethnicity, gender, moderate and vigorous physical activity levels, and Social Cognitive Theory constructs related to PA. Specifically, the study examined differences in PA between Hispanic college students and their NHW counterparts. The study also examined differences between male and female college students and their participation in PA. Consistent with the study hypotheses, Hispanics and female college students were found to engage in less days of vigorous and moderate PA than their NHW and male college student counterparts.

Exploratory analyses found that statistically significant differences existed by ethnicity for only two of three SCT constructs, self-efficacy and outcome expectancies- psychological and body image. In line with the SCT, NHW males, who reported the highest level of moderate and vigorous PA, also reported the highest levels of self-efficacy for PA. Consistent with past research among different populations, Hispanics had greater outcome expectancies for PA. These beliefs, however, did not result in higher levels of PA (Dergance et al, 2003).

Additionally, the study assessed differences between male and female college students in relation to SCT constructs for PA. Statistically significant differences were found for self-efficacy, self-regulation- plans and goals, and outcome expectancies- competition. As expected, women reported less self-efficacy for PA and lower levels of self-regulation for PA. Women were less efficient at planning and setting goals for PA. Female college students also

reported lower outcome expectancies for competition, when compared to their male counterparts.

Ethnicity by gender interactions were seen for outcome expectancies- psychological, body image, and competition. Hispanic males reported statistically significantly higher expectancies for the benefits of PA. Hispanic male and female college students had greater belief in the psychological benefits of PA, when compared to NHWs. An interaction was also found for body image expectancies, with Hispanic males reporting the highest values and NHW male college students reporting the lowest. Analysis of competition expectancies showed that Hispanic males had the highest outcome expectancies, while Hispanic female college students were found to have the lowest values.

Finally, the study aimed to explore mediational effects of theory constructs on the relationship between ethnicity, gender and PA. A total of five models were created to analyze these relationships. Two models were used to identify statistically significant mediators of the relationship between ethnicity and PA. In these models self-efficacy and outcome expectancies- body image and psychological were found to be the SCT constructs that partially mediated the relationship with ethnicity. Three models were created to explore the relationship between gender, PA and SCT constructs. These models revealed that self-efficacy and self-regulation- plans and goals were the SCT constructs that partially mediated the relationship between gender and PA.

Results of the analysis demonstrated support or partial support for all three study hypotheses. The first hypothesis stated that Hispanic students will

engage in lower levels of moderate and vigorous PA than NHWs. A 2X2 ANOVA found statistically significant differences in PA level by ethnicity, with Hispanics reporting few days of moderate and vigorous PA. The second study hypothesis stated that female college students will participate in lower levels of moderate and vigorous PA than male students. Results from the 2x2 ANOVA also found statistically significant differences between women and men. Women were found to take part in fewer days moderate and vigorous PA. The third hypothesis stated that Social Cognitive constructs for PA will mediate the relationship between ethnicity, gender, and PA. Mediation models demonstrated partial support for the hypothesis, as only self-efficacy and outcome expectancies- body image and psychological were found to mediate the relationship between ethnicity and PA. Likewise, only self-efficacy and self-regulation- plans and goals were found to mediate the relationship between gender and PA.

### **Implications for Interventions**

Study results provide support for the benefits of utilizing SCT constructs to measure PA among different populations. Although not all SCT constructs were examined and of those examined not all were found to be predictive of PA behaviors, such as outcome expectancies, the study findings can be useful for future PA interventions and health promotion programs. Based on the findings of this study, PA interventions among college populations should focus on increasing self-efficacy and self-regulation for PA, specifically among Hispanics and women. Bandura (1997) suggested several methods for increasing self-efficacy, including mastery experiences, social modeling, and improving physical

and emotional states. Such methods could be implemented by means of a campus health education program to encourage PA among students. For example, social modeling, or the use of peer leaders, may be particularly successful at increasing self-efficacy for PA among this population. Although mediational modeling suggests that body image and psychological expectancies partially mediate the relationship between ethnicity and vigorous days of PA, self-efficacy was found to be a stronger predictor of this relationship and therefore should be the primary focus of interventions.

### **Consistency With Past Research**

Overall, the results of this study were consistent with past research. Similar to other studies, Hispanics and women were found to engage in less PA when compared to their counterparts. As previously reported by Barnes and Schoenborn (2003), the greatest disparities for PA among women existed in the level of vigorous activity. Comparisons of the PA level by ethnicity and gender among a population of young adults revealed similar patterns to past studies with Hispanic women reporting lower levels of PA than NHW women and NHW men having the highest rates of vigorous PA overall.

In line with SCT and PA research, the most active group, NHW males, reported the highest levels of self-efficacy for PA. As documented by Anderson, Wojcik, Winett, and Williams (2006), self-regulation was also found to be an important mediator of PA in models. Consistent with studies conducted in different populations, Hispanics had greater outcome expectancies for PA. These beliefs, however, did not result in higher levels of PA. Although this



finding is consistent with some past research, it is contradictory to the theoretical framework. Additional research may be warranted to explore possible causes for such findings.

Contrary to past research, the study results did not find statistically significant differences in social support from friends or family by ethnicity and gender. Hovell et al. (1991) suggested that greater levels of social support might lead to more vigorous PA participation among Latinos by a means of increased motivation. However, in the present study, although Hispanic women reported the greatest levels of social support from family, they reported lower levels of vigorous PA.

### **Limitations**

The study had several limitations. First and foremost, the data used for analysis were collected through self-report questionnaires, which can introduce bias. Data gathered in this manner are subject to bias created by participants giving the perceived socially desirable answer. Additionally, although each scale showed good reliability, SCT scales used may not be effective at measuring the functionalization of theory constructs. While the scales may gauge the level of an individual's perceived importance of each construct, it does not guarantee an accurate rating of how the construct is operationalized in daily activities. Another limitation is the non-random selection of participants, which may have led to possible sample bias or a sample that is not representative of the population. Finally, these students self-selected to be part of this study therefore they may

not be truly representative of the general student population. Due to this fact, caution must be used in generalizing the results to other college campuses.

### **Strengths**

The study had two main strengths. First and foremost, the study was able to add to the body of literature exploring differences in PA level among population subgroups. Specifically, the study provided data on a unique group, college students attending a predominantly Hispanic-Serving university along the US-Mexico border. By conducting a study among this population, the investigator was able to increase understanding of PA in relation to ethnicity and support the creation of theory based interventions among Hispanics. Secondly, the study provided support for the application of the SCT in PA research. While previous studies have demonstrated support for the use of this theoretical framework in PA research among general adult populations, few have tested its effectiveness among college students. Furthermore, the present study incorporates the SCT in the examination of two population subgroups known to report lower levels of PA. The addition of these findings to the body of literature may justify the use of the SCT in PA research among other population subgroups in the future. Overall, the present study has successfully increased the understanding of PA in relation to Hispanic ethnicity and gender.

### **Suggestions for Future Research**

This study has provided additional support for the application of theoretical foundations in the research of PA. It also builds on the existing literature of PA among Hispanics, one of the fastest growing minority populations in the United

States. Areas for future research should include the evaluation of theory-based PA interventions among the college population, specifically among Hispanic college students. Given the importance of PA for overall health and wellness, there is a high demand for PA interventions that have been proved effective, particularly in subgroups of populations know to be more sedentary.

## **Conclusion**

This study used secondary data collected from students attending a predominantly Hispanic university in order to explore differences in PA by ethnicity and gender. Furthermore, the study examined differences in SCT constructs and their relationship to PA among sample subgroups. Study results suggested statistically significant differences by ethnicity and gender in PA. Likewise, statistically significant differences were shown among these subgroups in SCT constructs. Specifically, the study results suggested that Hispanic participated in lower levels of PA compared to NHW, whom reported higher levels of self-efficacy for PA. Although Hispanics reported higher outcome expectancies for PA, this did not result more moderate or vigorous PA. Female college students were also found to engage is less PA then male college students. Not surprisingly, male college students reported higher levels of self-efficacy and self-regulation for making plans and goals for PA. Finally, mediational models were used to identify the role of SCT constructs on the relationship between ethnicity, gender, and PA. Study findings, although not generalizable, are largely consistent with past research and provide insight to areas in need of further exploration.

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## **APPENDIX**

### **PHYSICAL ACTIVITY BEHAVIOR QUESTIONNAIRE**

Please circle the letter that best represents your response.

1. What is your gender?
  - a. Male
  - b. Female
  
2. What is your age? \_\_\_\_\_
  
3. What is your race?
  - a. White
  - b. African American
  - c. Asian
  - d. American Indian
  - e. Native Hawaiian/Pacific Islander
  - f. Alaska native
  
4. Are you Hispanic or Latino
  - a. Yes
  - b. No
  
5. What is your student status?
  - a. Full-time
  - b. Part-time
  
6. What is your classification?
  - a. Freshmen
  - b. Sophomore
  - c. Junior
  - d. Senior
  - e. Graduate student
  
7. What is your major: \_\_\_\_\_
  
8. What is your marital status:

- a. Single
- b. Married
- c. Separated
- d. Divorced
- e. Other

9. What is your current place of residence:

- a. El Paso County
- b. Dona Ana County
- c. Juarez
- d. Other

10. Where are you living now?

- a. With parents
- b. Own/rent apartment, room, house
- c. Miner village/dorms
- d. Someone else's apartment/house
- e. Other

11. What is your yearly income? \_\_\_\_\_/year

12. Are you currently employed?

- a. Yes, full time
- b. Yes, part time
- c. No

13. If yes, how many hours/week do you work on average? \_\_\_\_\_/week

14. How would you rank your general physical health status during the past 6 months?

- a. Excellent
- b. Good
- c. Fair
- d. Poor
- e. Very poor

15. How would you rank your general mental/emotional/psychological health status during the past 6 months?

- a. Excellent
- b. Good
- c. Fair

- d. Poor
- e. Very poor

16. How would you rank your diet during the past 6 months?

- a. Excellent
- b. Good
- c. Fair
- d. Poor
- e. Very poor

17. Anthropometric indicators:

- a. Weight\_\_\_\_\_lbs
- b. Height\_\_\_\_ft\_\_\_\_in



## INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the **last 7 days**. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

\_\_\_\_ **days per week**

2. How much time did you usually spend doing **vigorous** physical activities on one of those days?

\_\_\_\_ **hours per day**

\_\_\_\_ **minutes per day**

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

\_\_\_\_ **days per week**

4. How much time did you usually spend doing **moderate** physical activities on one of those days?

\_\_\_\_ **hours per day**

\_\_\_\_ **minutes per day**

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

\_\_\_\_ **days per week**

6. How much time did you usually spend **walking** on one of those days?

\_\_\_\_ **hours per day**

\_\_\_\_ **minutes per day**

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during

leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

\_\_\_\_ **hours per day**

\_\_\_\_ **minutes per day**

### **SELF EFFICACY FOR PHYSICAL ACTIVITY SURVEY**

Whether you exercise or not, please rate how confident you are that you could really motivate yourself to do things like these consistently, for at least *six months*.

Please circle the number that reflects  
**know**  
you the best.

<b>I know</b>	<b>Maybe</b>	<b>I</b>
<b>I cannot</b>	<b>I can</b>	<b>I can</b>

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
----------	----------	----------	----------	----------

1. Get up early, even on weekends, to exercise

1	2	3	4	5
---	---	---	---	---

2. Stick to your exercise program after a long, tiring day at work

1	2	3	4	5
---	---	---	---	---

3. Exercise even though you are feeling depressed

1	2	3	4	5
---	---	---	---	---

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 4. Set aside time for a physical activity program; that is, walking, jogging, swimming, biking, or other continuous activities for at least 30 minutes, 3 times per week | 1 | 2 | 3 | 4 | 5 |
| 5. Continue to exercise with others even though they seem too fast or too slow for you.  | 1 | 2 | 3 | 4 | 5 |
| 6. Stick to your exercise program when undergoing a stressful life change (e.g., divorce, death in the family, moving).  | 1 | 2 | 3 | 4 | 5 |
| 7. Attend a party only after exercising.   | 1 | 2 | 3 | 4 | 5 |
| 8. Stick to your exercise program when your family is demanding more time from you.  | 1 | 2 | 3 | 4 | 5 |
| 9. Stick to your exercise program when you have household chores to do.  | 1 | 2 | 3 | 4 | 5 |
| 10. Stick to your exercise program even when you have excessive demands at work.   | 1 | 2 | 3 | 4 | 5 |
| 11. Stick to your exercise program when social obligations are very time consuming.  | 1 | 2 | 3 | 4 | 5 |
| 12. Read or study less in order to exercise more.  | 1 | 2 | 3 | 4 | 5 |

## SELF REGULATION FOR PHYSICAL ACTIVITY

### Exercise Goals

The following questions refer how you set exercise goals and plan exercise activities. Please indicate the extent to which each of the statements below describes you:

	Does not Describe	1	2	Describes Moderately	3	4	Describes Completely	5
1. I often set exercise goals.	1		2		3		4	5
2. I usually have more than one major exercise goal.	1		2		3		4	5
3. I usually set dates for achieving my exercise goals.	1		2		3		4	5
4. My exercise goals help to increase my motivation for doing exercise.	1		2		3		4	5
5. I tend to break more difficult exercise goals down into a series of smaller goals.	1		2		3		4	5
6. I usually keep track of my progress in meeting my goals.	1		2		3		4	5
7. I have developed a series of steps for reaching my exercise goals.	1		2		3		4	5
8. I usually achieve the exercise goals I set for myself.	1		2		3		4	5
9. If I do not reach an exercise goal, I analyze what went wrong.	1		2		3		4	5
10. I make my exercise goals public by telling								

other people about them.	1	2	3	4	5
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## Exercise Plans

The following questions refer to how you fit exercise into your lifestyle. Please indicate the extent to which each of the statements below describes you:

	Does not Describe	Describes Moderately	Describes	Describes	
Completely	1	2	3	4	5
11. I never seem to have enough time to exercise.	1	2	3	4	5
12. Exercise is generally not a high priority when I plan my schedule.	1	2	3	4	5
13. Finding time for exercise is difficult for me.	1	2	3	4	5
14. I schedule all events in my life around my exercise routine.	1	2	3	4	5
15. I schedule my exercise at specific times each week.	1	2	3	4	5
16. I plan my weekly exercise schedule.	1	2	3	4	5
17. When I am very busy, I do not do much exercise.	1	2	3	4	5
18. Everything is scheduled around my exercise routine.	1	2	3	4	5
19. I try to exercise at the same time and same day each week to keep a routine going.	1	2	3	4	5

20. I write my planned activity sessions in  
an appointment book or calendar..

1      2      3      4      5

## OUTCOME EXPECTATIONS AND EXPECTANCIES

Please complete the phrase I exercise to... for each item. Please circle a number that represents how often (FREQUENCY) and the value (IMPORTANCE) for each item:

I exercise to:	FREQUENCY					IMPORTANCE		
	never	rarely	some time	often	very often	low value	med value	high value
Improve my health	1	2	3	4	5	1	2	3
Stay in shape	1	2	3	4	5	1	2	3
Release tension	1	2	3	4	5	1	2	3
Maintain/lose weight	1	2	3	4	5	1	2	3
Enhance my self-image and appearance	1	2	3	4	5	1	2	3
Improve my physical Attractiveness	1	2	3	4	5	1	2	3

Feel a positive

psychological effect	1	2	3	4	5	1	2	3
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Experience a sense of

accomplishment	1	2	3	4	5	1	2	3
----------------	---	---	---	---	---	---	---	---

Enjoy the activity	1	2	3	4	5	1	2	3
--------------------	---	---	---	---	---	---	---	---

Improve mental alertness	1	2	3	4	5	1	2	3
--------------------------	---	---	---	---	---	---	---	---

Cope with life's pressures	1	2	3	4	5	1	2	3
----------------------------	---	---	---	---	---	---	---	---

Have fun/enjoyment	1	2	3	4	5	1	2	3
--------------------	---	---	---	---	---	---	---	---

Feel younger	1	2	3	4	5	1	2	3
--------------	---	---	---	---	---	---	---	---

Spend time with friends	1	2	3	4	5	1	2	3
-------------------------	---	---	---	---	---	---	---	---

Be a member of a team	1	2	3	4	5	1	2	3
-----------------------	---	---	---	---	---	---	---	---

Earn the respect of others

for my skills	1	2	3	4	5	1	2	3
---------------	---	---	---	---	---	---	---	---

Spend time with family	1	2	3	4	5	1	2	3
------------------------	---	---	---	---	---	---	---	---

Feel the thrill of victory	1	2	3	4	5	1	2	3
----------------------------	---	---	---	---	---	---	---	---



Feel the thrill of

competition

1      2      3      4      5      1      2      3

**SOCIAL SUPPORT FROM FAMILY & FRIENDS FOR PHYSICAL ACTIVITY**

Please write one number from the following rating scale in each space

1	2	3	4	5
none	rarely	a few times	often	very often

**During the past 3 months, my family  
(or members of my household) or friends**

**Family Friends**

- |  |             |
|--|-------------|
| 1. exercised with me   | A____ B____ |
| 2. offered to exercise with me   | A____ B____ |
| 3. gave me helpful reminders to exercise<br>("Are you going to exercise tonight?") | A____ B____ |
| 4. gave me encouragement to stick with<br>my exercise program                      | A____ B____ |
| 5. changed their schedule so we could exercise<br>together                         | A____ B____ |
| 6. discussed exercise with me  | A____ B____ |
| 7. complained about the time I spend exercising                                    | A____ B____ |

8. criticized me or made fun of me for exercising A\_\_\_\_ B\_\_\_\_
9. gave me rewards for exercising (bought me something I like) A\_\_\_\_ B\_\_\_\_
10. planned for exercise on recreational outings A\_\_\_\_ B\_\_\_\_
11. helped plan activities around my exercise A\_\_\_\_ B\_\_\_\_
12. asked me for ideas on how they can get more exercise A\_\_\_\_ B\_\_\_\_
13. talked about how much they like to exercise A\_\_\_\_ B\_\_\_\_

## **Vita**

In December 2009, Amber L. Bridges-Arzaga obtained a Bachelor of Science in Health Promotion with a minor in Community Health from the University of Texas at El Paso. While working on her undergraduate degree, she had the opportunity to become involved in two research projects, which focused on physical activity and community health education. Both projects later resulted in publications that included Amber as an author. Amber was also the recipient of a research award from the Hispanic Health Disparities Research Center, which enabled her to extend the research project focusing on physical activity. Upon completing her degree, she was honored as a 2010 Top Ten Senior.

Amber entered the Master of Public Health Program in the fall of 2010. She continued to work with her advisor and mentor Dr. Joe Tomaka and participated in a collaborative research group through the Department of Public Health Sciences. While working on her graduate degree, Amber completed an internship with the Paso del Norte Health Foundation and worked as the coordinator for the University Wellness Program. She also worked as an evaluation assistant for Helix Solutions, a local program evaluation firm.

As a graduate student, Amber had the opportunity to take part in a mentorship program. It was through this program that she met Dr. Stormy Morales-Monks who has provided support and guidance throughout the completion of her thesis project. Dr. Tomaka and Dr. Monks have played an enormous role in Amber's achievements.